



IBM POUGHKEEPSIE
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Diagnostic Engineering Publication

1410/7010

Subject: Diagnostic Program M011 - 1410/7010-1401 CPU Compatibility

Sequence Number 279
Replaces

I. System Control Card 1 card 001

Enclosures: 74 Pages
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)
8 Cards - Card Loader (1-7) and 1 Core Clear
157 Cards No. 001 - 157 Data Cards
1 Card Execute Card

Distribution: X 1410
X 7010
Other

Page 001

MO11A
RELIABILITY TEST OF
1401 COMPATIBILITY FEATURE
ON
1410/7010 CPU

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2.XX.00 TEST DESCRIPTION

2.XX.00.1 MODIFICATIONS

This is a new program.

2.XX.00.2 Description

This program is designed to test the reliability of the 1410/7010 CPU while operating in 1401 mode. The program assumes that the system is functioning properly while in 1410/7010 operational mode and, therefore, tests only those areas of the CPU affected by 1401 compatibility circuits.

This program is written in a sequential routine format. Two sequences of test routines along with the initial routine to set up post restart and type program ID are located beyond 8K to conserve memory space. The test routines located beyond 8K are executed only on systems having a memory size greater than 10K. See sections 2.XX.06.1 for a general flow diagram of the program and section 2.XX.06.2 for a flow diagram of a typical routine.

Routines 1-10 provide tests of basic instructions used throughout the remainder of the test for the purposes of initialization, control and routine check. An error in these routines should always result in an error halt with no programmed typeouts. They are executed only once during the first program pass.

All remaining test routines communicate with 2 common control routines to test for inquiry and to test TAD locations for looping routines, indicating errors, and halting on error. Errors will be indicated by a 6 character typeout as follows:

ERR XXX*

*XXX indicates the 1401 3 digit representation of the 5 position error address. See section 2.XX.07.0 for address conversion chart.

The program will normally make 100 passes before typing PASS and testing TAD3 for repeat of entire program. If TAD3 is not 1 the program will halt to change mode back to 1410/7010. Pressing start will call in the next program. If TAD3 is a 1 program will execute another 100 passes beginning with routine 11.

2.XX.00.3 Equipment Required
CPU, CONSOLE PRINTER

2.XX.00.4 Card Deck

7 Cards ----- Load Program
1 Card ----- Core Clear Card
157 Cards numbered 001 - 157 Program

Card numbered 001 is Standard System
Control Card
1 Card ----- Execute Card (Branch to 2000)

2.XX.00.5 Machine E.C. Level
250772

2.XX.00.6 Pass Length
1410 8.5 sec.
1410I 7 sec.
7010 2.8 sec.

These times represent the approximate times required to run 100 passes excluding manual tests. 100 passes should provide a satisfactory reliability check of the system CPU in 1401 mode of operation. If it is desired to change the length of the pass make alterations as follows:

Alter locs. 1010 to 1012 to desired number of passes.

2.XX.01 LOADING PROCEDURE

2.XX.01.0 FROM CARDS

A. 7010-1410 without Load Button

1. Clear memory
2. Display memory location 00000
3. Alter to-
 - RL%1100011\$. For channel 1 reader
 - XL%1100011\$. For channel 2 reader
4. Set to RUN, Computer Reset, Start.

B. 7010 with Load Button

1. Clear Memory
2. Computer Reset
3. Depress Load Button

2.XX.01.2 FROM TAPE (80 Character Master or Memory Dump Tape)

A. 7010-1410 without Load Button

1. Clear Memory
2. Display memory location 00000
3. Alter to-
 - RL%B000011\$. For channel 1 tape drive
 - XL%B000011\$. For channel 2 tape drive
4. Set to RUN, Computer Reset, Start.

B. 7010 with Load Button

1. Clear Memory
2. Computer Reset
3. Depress Tape Load Button

2.XX.02.0 OPERATING PROCEDURE

Load Program

Program will type "MO11A" and instruction message to set compatibility switch to 1401. Set switch to 1401 and press start to begin program execution. Under normal conditions (All TADS 0 and no errors encountered) program will make 100 passes stopping twice during 1st PASS only to test HALT and HALT & BRANCH instructions. before typing "PASS". Routines 100 and 101 are executed only when TAD4 is a 1. It is recommended, therefore, that at least one pass be made with TAD4 (loc. 1004) containing 1 to execute these routines to test sense switches.

After 100 passes program will type "PASS" and then halt after typing message to return compatibility switch to 1410/7010. Press computer reset and start to return to load routine.

Normal program operations may be altered by using the Console Printer Inquiry routine to set one or several of the following TAD locations to "1".

<u>TAD</u>	<u>ADDRESS</u>	<u>IF NOT 1 (NORMAL)</u>	<u>IF SET TO 1</u>
0	01000 (*00)	Normal Typeouts	Bypass all Typeouts for scoping
1	01001 (*01)	No loops	Loop on present routine
2	01002 (*02)	No halts	Halt on error
3	01003 (*03)	100 passes only	Cycle program indefinitely
4	01004 (*04)	Bypass Manual Routines	Execute Manual Routines

The Console Printer Inquiry routine mentioned above may be used to alter TADS once the main loop of the program has begun (not during execution of first 10 routines to test basic instructions). To alter TADS do the following:

Depress Inquiry Request Key

NOTE: If program is stopped when this key is depressed, it will be necessary to press computer start to branch on inquiry. Machine should type an I, make a space and unlock the keyboard for insertion of characters beginning at loc. 01000.

Key in the 5 numbers (0's and 1's) for desired set-up of TAD0 - TAD4 (loc. 1000 - 1004).

NOTE: The program requires that the five digits always be altered even though it may be desired to change only TAD3 (loc. 1003). If an error is made during the key-in, the inquiry cancel key may be depressed to terminate the inquiry and branch program back to the same read console printer instruction. After the 5th character representing TAD4 has been keyed in, depress inquiry release to resume running.

2. XX. 03. 0 OPERATING HINTS AND COMMENTS

1. Post Restart for routines 11 - 111 comprising the main loop of the program is maintained in locations 0001 - 0004. Any of these routines may be restarted, therefore, by depressing computer Reset and Start.
2. If a routine is causing a machine stop because of an alarm condition and it is desired to loop the routine for scoping do the following:
 - a. Alter TAD1 to a 1 to loop the routine.
 - b. Turn the check control switch to RESET AND RESTART Mode.
 - c. Depress Computer Reset and START.

NOTE: Altering TAD1 to 1 is desired for intermittent alarm failures to insure that the program will stay in the failing routine.

2. XX. 04. 0 PROGRAM STOPS AND RESTARTS

- 1337 Routine Error halt - occurs following Error typeout when TAD2 contains a "1". This halt provides an opportunity to examine the failing routine to help determine the cause of failure. Press start to test TAD1 for loop or depress computer reset and start to try the routine again.
- N 2008 Normal Halt while in 1410/7010 Mode following typeout of program ID and instruction message to set compatibility switch to 1401. Set compatibility switch to 1401 and press start.
- N 2010 Normal Halt to test Halt instruction. Should occur only once during first pass of program. Press start to go to next routine.
- N 2018 Normal Halt to test Halt and Branch instruction. Should occur only once during first pass of program. Press start to go to next routine.
- 2019 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2010 to try again.

- 2028 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2019 to try again.
- 2049 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2028 to try again. NOP instruction at loc. 2049 may be changed to a branch to loop routine.
- 2078 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2053 to try again. NOP instruction at loc. 2078 may be changed to a branch to loop routine.
- 2100 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2082 to try again. NOP instruction at loc. 2100 may be changed to a branch to loop routine.
- 2128 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2104 to try again. NOP instruction at loc. 2128 may be changed to a branch to loop routine.
- 2153 - 2162 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2132 to try again. NOP instruction at loc. 2196 may be changed to a branch to loop routine.
- 2228 Error Halt - Refer to program listing for explanation. Execute a manual branch to loc. 2200 to try again. NOP instruction at loc. 2228 may be changed to a branch to loop routine.
- 2245 Program may halt here once if inquiry latch was on. Pressing start should allow program to continue NOP instruction at loc. 2245 may be changed to a branch to loop routine.
- N 6332 Normal Halt following timeout giving instruction to set all sense switches off. Set all sense switches on and press start.
- N 6480 Normal Halt following timeout giving instruction to set all sense switches on. Set all sense switches off and press start.
- N 7102 Normal Halt following timeout giving instruction to set compatibility switch to 1410/7010 mode. Set compatibility switch to 1410/7010 and press start to call in NEXT program.

2.XX.05.0 TYPEOUTS

2.XX.05.1 Non Error Typeouts

"MO11A"

Program identity typed after program is loaded while system is still in 1410/7010 mode.

"SET COMPATIBILITY SW TO 1401 PRESS START"

Instruction message typed after program ID while system is still in 1410/7010 mode.

"TURN ON (OFF) ALL SENSE SWS PRESS START"

Instruction messages typed within manual routines to test sense switches.

"SET COMPATIBILITY SWITCH TO 1410/7010
PRESS COMPUTER RESET AND START"

Instruction message typed after program has made 100 passes and TAD3 (loc. 1003) has been found to be NOT 1.

"PASS"

Types after each 100 passes of the program.

2.XX.05.2 Error Typeout

"ERR XXX"

This typeout will occur whenever an error is detected in a test routine. The XXX represents the normal 5 digit address within 3 digits.

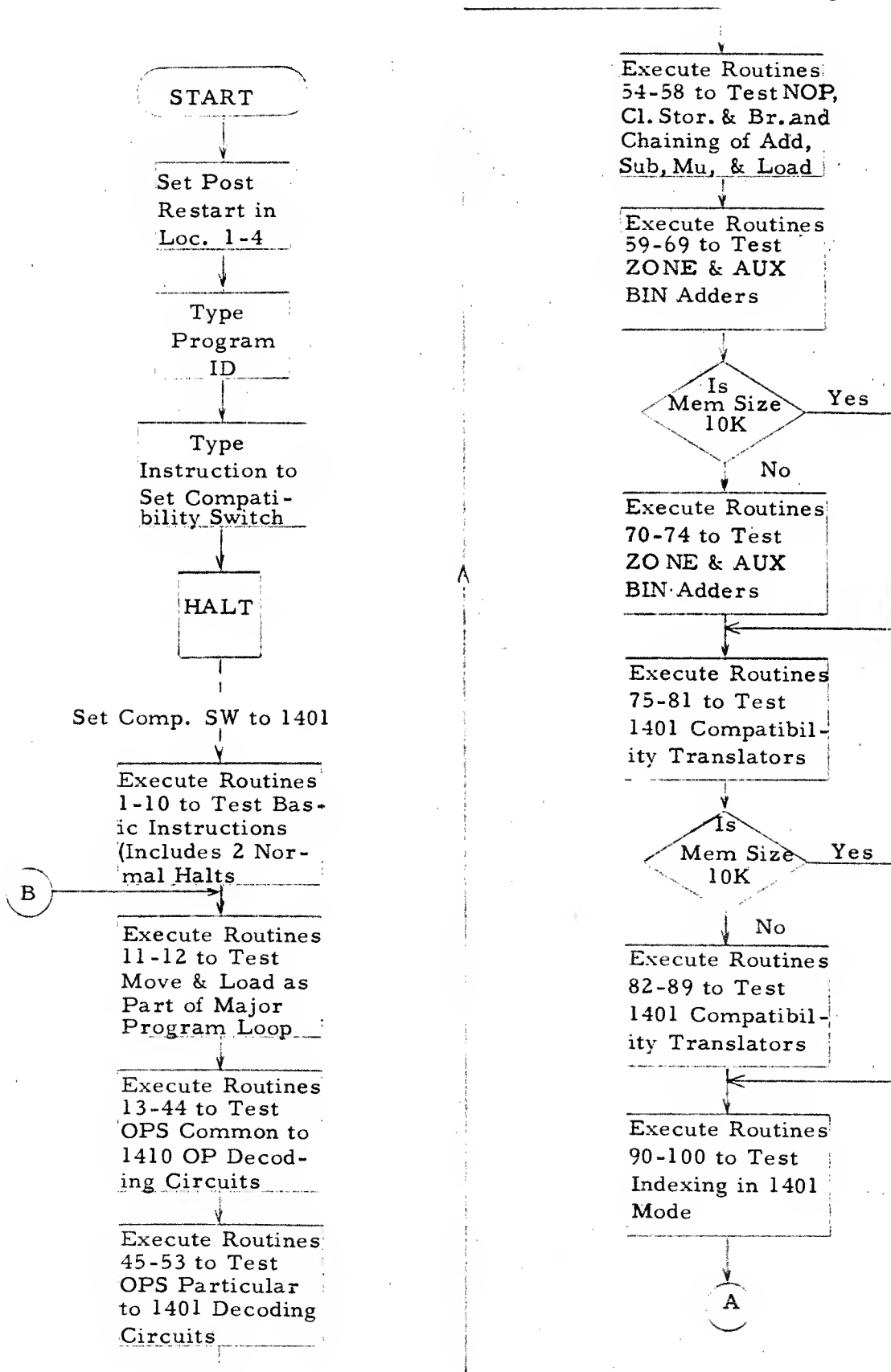
Error Address may be deciphered as follow:

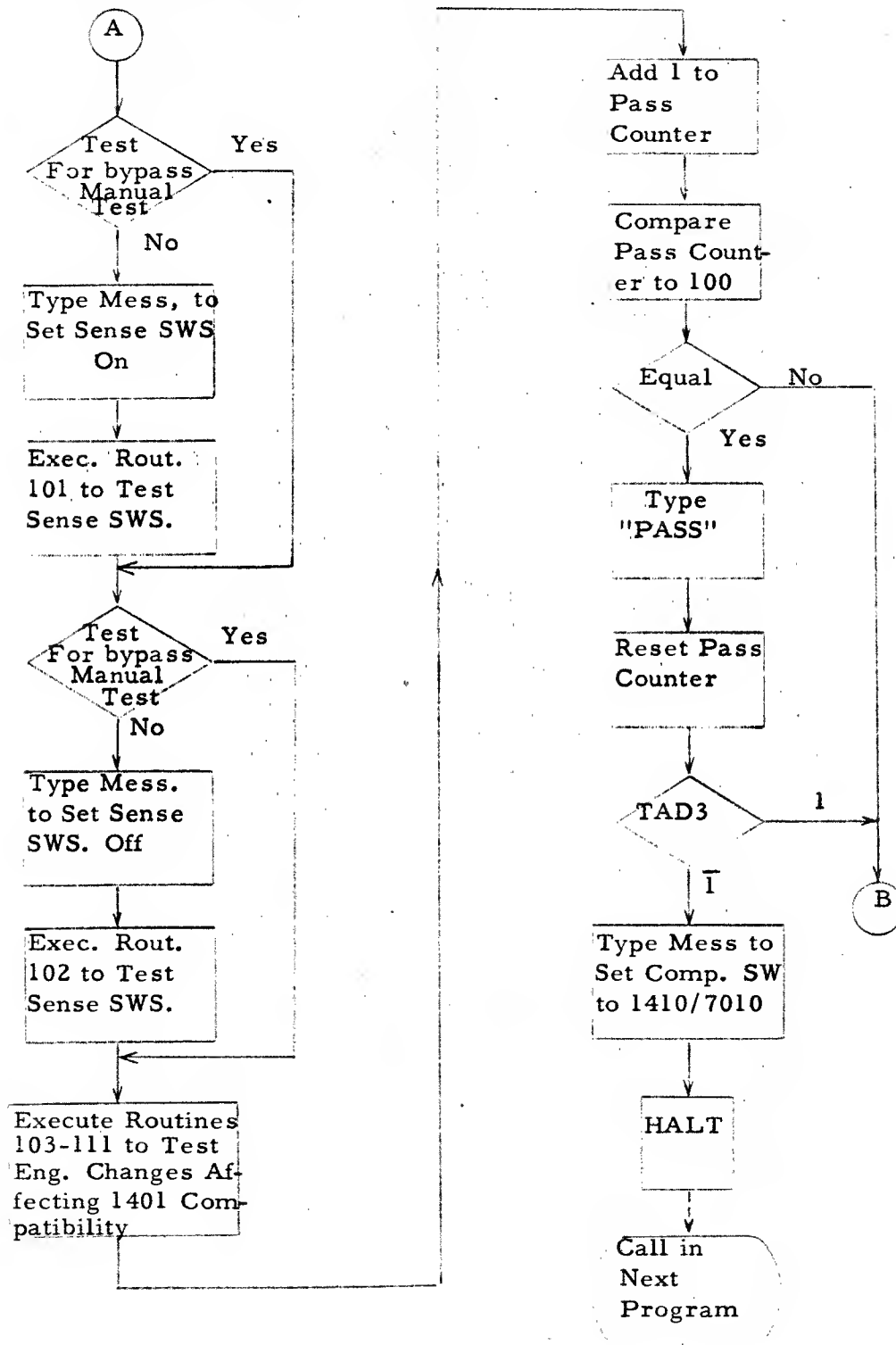
B = 2		B = 8
A = 1		A = 4
0	0	0
Hunds.		Units

Ex. ERR P2S

	B A
P2S =	722 = 06722

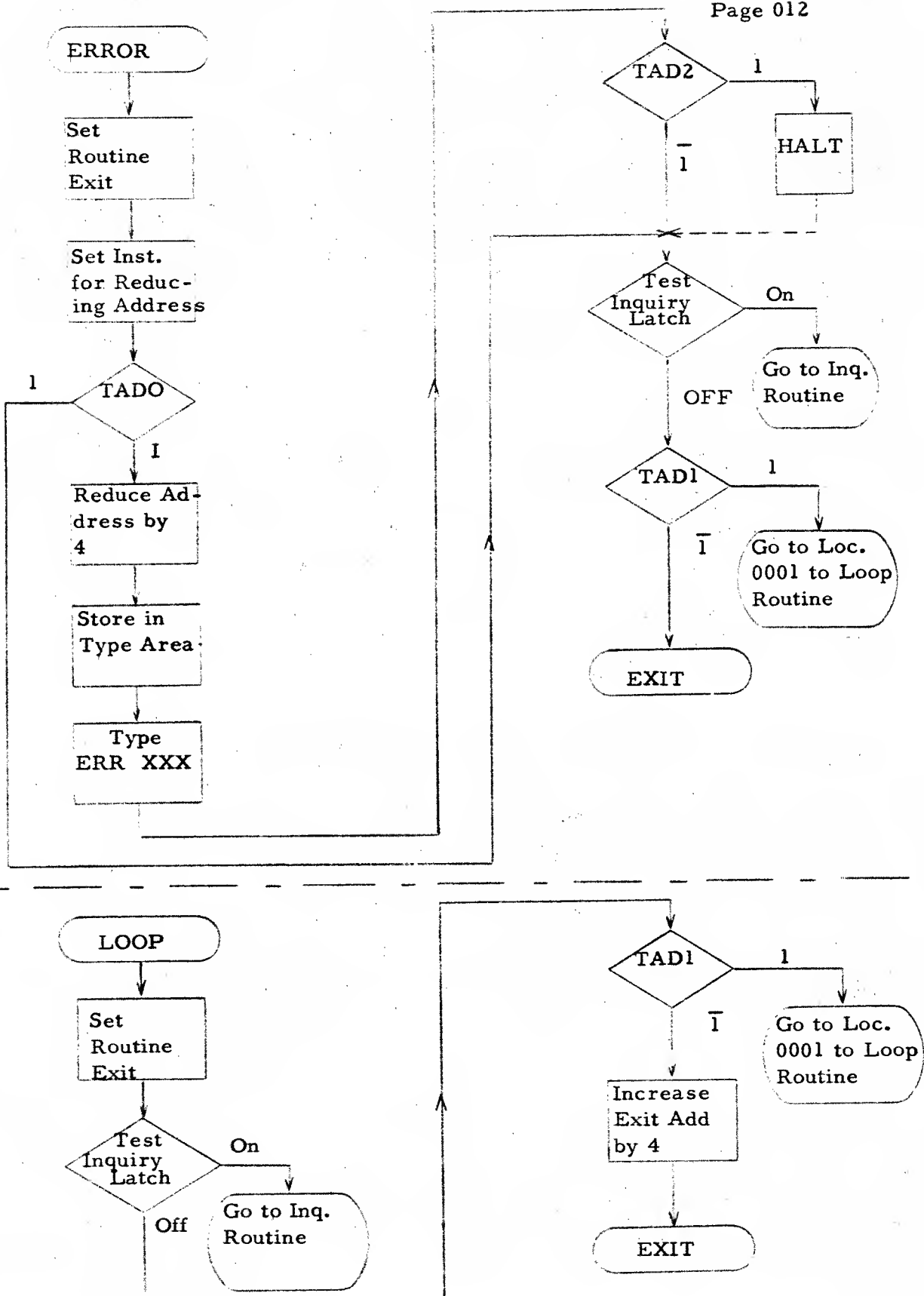
See section 2.XX.07.0 for address conversion chart.





ERROR ROUTINE AND LOOP ROUTINE FLOW

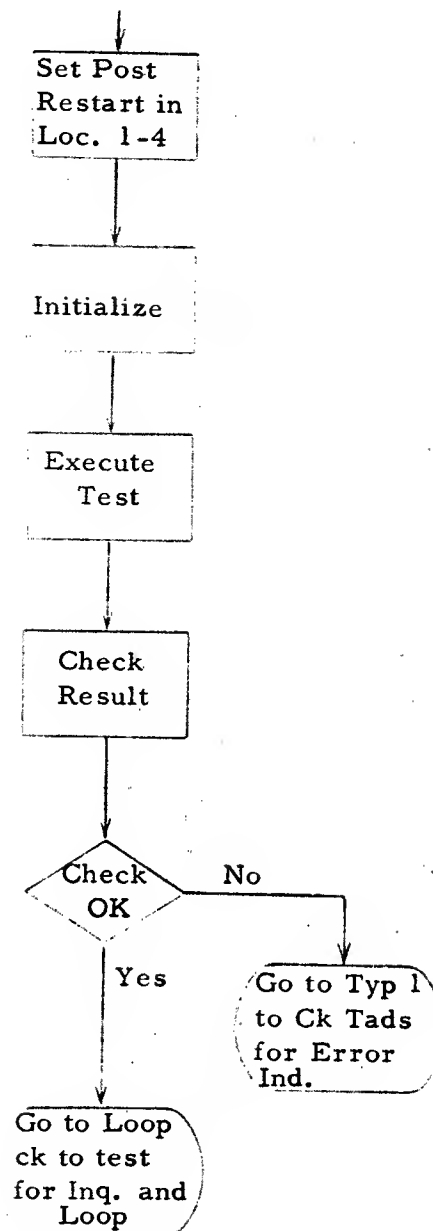
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2.XX.06.2 TYPICAL ROUTINE FLOW CHART

MO11

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2. XX.07.0 ADDRESS CONVERSION CHART

M011

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ACTUAL ADDRESSES	ZONE BITS OVER HUNDREDS POSITION	ZONE BITS OVER UNITS POSITION	3-CHARACTER ADDRESSES
0000 to 0999 1000 to 1999 2000 to 2999 3000 to 3999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	No Zone Bits No Zone Bits No Zone Bits No Zone Bits	000 to 999 +00 to Z99 !00 to R99 ?00 to I99
4000 to 4999 5000 to 5999 6000 to 6999 7000 to 7999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	A-Bit (Zero-Zone) A-Bit (Zero-Zone) A-Bit (Zero-Zone) A-Bit (Zero-Zone)	00! to 99Z +0! to Z9Z !0! to R9Z ?0! to I9Z
8000 to 8999 9000 to 9999 10000 to 10999 11000 to 11999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	B-Bit (11-Zone) B-Bit (11-Zone) B-Bit (11-Zone) B-Bit (11-Zone)	00! to 99R +0! to Z9R !0! to R9R ?0! to I9R
12000 to 12999 13000 to 13999 14000 to 14999 15000 to 15999	No Zone Bits A-Bit (Zero-Zone) B-Bit (11-Zone) AB-Bits (12-Zone)	AB-Bits (12-Zone) AB-Bits (12-Zone) AB-Bits (12-Zone) AB-Bits (12-Zone)	00? to 99I +0? to Z9I !0? to R9I ?0? to I9I

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

101 AA 00 000 JOB 1410/7010-1401 CPU COMPATIBILITY TEST

102 AA 01 CTL 461111

103 AA 03 *****

104 AA 04 M011

105 AA 05 1410/7010-1401

106 AA 06 COMPATIBILITY TEST

107 AA 07 *****

108 AA 08 *****

109 AA 09 EQU 1000

110 AA 10 EQU 1001

111 AA 11 EQU 1002

112 AA 12 EQU 1003

113 AA 13 EQU 1004

114 AA 14 OMHUND EQU 1012

115 AA 15 PSCNT EQU 1015

116 AA 16 IDENT EQU 1250

117 AA 17 SYSL EQU 1256

118 AA 18 MEMSIZ EQU 1257

119 AA 19 START EQU 2000

120 AA 20

121 AA 21

122 AA 22

123 AA 23

124 AA 24

125 AA 25

126 AA 26

127 AA 27

128 AA 28

129 AA 29

130 AA 30

131 AA 31

132 AA 32

133 AA 33

134 AA 34

135 AA 35

136 AA 36

137 AA 37

138 AA 38

139 AA 39

140 AA 40

141 AA 41

142 AA 42

143 AA 43

144 AA 44

145 AA 45

146 AA 46

147 AA 47

TADO EQU

TAD1 EQU

TAD2 EQU

TAD3 EQU

TAD4 EQU

OMHUND EQU

PSCNT EQU

IDENT EQU

SYSL EQU

MEMSIZ EQU

START EQU

ORG SYSL

ORG

DC

DC

ORG

DCW

DCW

DCW

ORG

DC

DCW

1239

21J8X02790Z

2M011A2

212

1000

2000002

212

2

2

1239

21J8X02790Z

2M011A2

212

1000

2000002

212

THE ONLY PSN IN
THE SYSTEM CONT
CO REQUIRED BY
THIS PROGRAM IS
STOR LOC 1257
PROG TESTS THIS
LOC FOR 0 TO
DETERMINE 10K
MEM - IF NOT 0
MEM SIZE GREATER
THAN 10K IS
ASSUMED

2

2

2

1239

21J8X02790Z

2M011A2

212

1000

2000002

212

1000

1001

1002

1003

1004

1012

1015

1250

1256

1257

2000

1256

32 1287

1 1288

1239

11 1249

5 1254

1 1255

1000

5 1004

1 1005

1410/7010-1401 CPU COMPATIBILITY TEST

SEQ PG LIN LABEL OP OPERANDS

148 AA 48
 149 AA 49
 150 AA 50
 151 AA 51
 152 AA 52
 153 AA 53
 154 AA 54
 155 AA 55
 156 AA 56
 157 AA 57
 158 AA 58
 159 AA 59
 160 AA 60
 161 AA 61

ORG 1010

1010

PASS COUNT CONSTANT AND WORK AREA

DCM 21002
 DCM 20002
 DC 2PASS2
 DCM 212

3 1012
 3 1015
 4 1019
 1 1020

LOC 1004 IS
 TESTED FOR 1 TO
 DETERMINE IF
 MANUAL TESTS ARE
 TO BE EXECUTED

PAS

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

162 AA 63 JOB 1410/7010-1401 CPU COMPATIBILITY TEST
 163 AA 65 ORG 1289
 164 AA 66
 165 AA 67
 166 AA 68
 167 AA 69
 168 AA 70
 169 AA 71
 170 AA 72
 171 AA 73
 172 AA 74
 173 AA 75
 174 AA 76
 175 AA 77
 176 AA 78

ERROR ROUTINE
 THIS ROUTINE IS ENTERED WHEN AN ERROR
 IS ENCOUNTERED WITHIN TEST ROUTINE
 TEST TADO
 IF 1 BYPASS ERR IND AND CK INQUIRY & LOOP
 IF 0 TYPE ERROR ADDRESS AND TEST
 TAD2 IF 1 HALT BEFORE INQUIRY AND LP TST
 IF 0 PROCEED TO TEST FOR INQUIRY AND LOOP
 IF TAD1 IS 1 GO TO 00001 TO LOOP
 IF TAD1 IS 0 GO TO NEXT ROUTINE

177 AA 79 TYPE1 SBR TPEXIT003 4 1289 H T53
 178 AA 80 SBR REDADD003 4 1293 H T08
 179 AA 81 BCE LPC,TAD0,1 8 1297 B T37 #00 1
 180 AA 82 REDADD SW 0000 4 1305 . 000
 181 AA 83 CW 1 1309 a
 182 AA 84 CW 1 1310 a
 183 AA 85 CW 1 1311 a
 184 AA 86 SAR 4 1312 Q T60
 185 AA 87 MCW 8 1316 M T10 T54 W
 186 AA 88 BCE 8 1324 B T36 #02 1
 187 AA 89 B 4 1332 B T37
 188 AA 90 ERHALT H 1 1336 . T93 Q
 189 AA 91 LPC 5 1337 B T93 Q
 190 AA 92 BCE 8 1342 B 001 #01 1
 191 AA 93 TPEXIT B 0000 4 1350 B 000
 192 AA 94 ERRLOC DCW 7 1360
 193 AA 95 0ERR a 1 1361
 194 AA 96
 195 AA 97
 196 AA 98
 197 AA 99
 198 AB 00
 199 AB 01
 200 AB 02
 201 AB 03
 202 AB 04
 203 AB 05
 204 AB 06
 205 AB 07
 206 AB 08
 207 AB 09
 208 AB 10
 209 AB 11
 210 AB 12
 211 AB 13

LOOP CHECK ROUTINE
 THIS ROUTINE IS ENTERED UPON SUCCESSFUL
 COMPLETION OF TEST ROUTINE TO CK
 FOR INQUIRY AND LOOP

202 AB 04 LOOPCK SBR LPEX003 4 1362 H T89
 203 AB 05 BIN ALTER,Q 5 1366 B T93 Q
 204 AB 06 BCE 0001,TAD1,1 8 1371 B 001 #01 1
 205 AB 07 MA BUMP,LPEX003 7 1379 # T92 T89
 206 AB 08 LPEX B 0000 4 1386 B 000
 207 AB 09 BUMP 3 1392
 208 AB 10
 209 AB 11
 210 AB 12
 211 AB 13

CONSOLE PRINTER INQUIRY ROUTINE

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[illegible]

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP DPERANDS

218 AB 21 JOB
219 AB 23
220 AB 24
221 AB 25
222 AB 26
223 AB 27
224 AB 28
225 AB 29
226 AB 30
227 AB 31
228 AB 32
229 AB 33
230 AB 34
231 AB 35
232 AB 36
233 AB 37
234 AB 38
235 AB 39
236 AB 40
237 AB 41
238 AB 42
239 AB 43
240 AB 44
241 AB 45
242 AB 46
243 AB 47
244 AB 48
245 AB 49
246 AB 50
247 AB 51
248 AB 52
249 AB 53
250 AB 54
251 AB 55
252 AB 56
253 AB 57
254 AB 58
255 AB 59
256 AB 60
257 AB 61
258 AB 62
259 AB 63
260 AB 64
261 AB 65
262 AB 66
263 AB 67
264 AB 68
265 AB 69
266 AB 70
267 AB 71

ONE DCM
FLDA DCM
FLDBEQ DCM
FLDBHI DCM
FLDBLD DCM
GRPMK DC
BLANK DC
TESAD DCM
P654 DCM
PODD DCM
P321 DCM
M321 DCM
P987 DCM
P666 DCM
PA11 DCM
PG65 DCM
PCB1 DCM
ZS8SET DCM
ZSTEST DCM
ZSCOMP DCM
NES DCM
ABC DCM
M123 DCM
PI1 DCM
P22 DCM
MULAN1 DCM
PRDD DCM
P87 DCM
P96 DCM
MULAN2 DCM
A5 DCM
TWFR DCM
THRFV DCM
MULAN3 DCM
PRDDA DCM
P99999 DCM
JKL DCM
P47 DCM
MULAN4 DCM
M31 DCM
M00 DCM
MULAN5 DCM
PDI DCM
DVRES DCM
QUOT DCM

212
2AK12
2AK12
2 AK12
2 K12
212
2 2
200
2654
2000
2321
-321
2987
2666
2A112
2G652
2CBA2
2ZSSE12
2 2
-D0765
29872
2ABC2
-123
211
222
2D0242
2 2
287
296
2D8352
2AAAAA2
2242
2352
200840
2 2
299999
2JKL2
247
-005781
-31
-00
2DDDD00
201
2 2
2 2
2 2

1 1414
3 1417
3 1420
4 1424
3 1427
1 1428
1 1429
3 1432
3 1435
3 1438
3 1441
3 1444
3 1447
3 1450
3 1453
3 1456
3 1459
5 1464
5 1469
5 1474
3 1477
3 1480
3 1483
2 1485
2 1487
5 1492
5 1497
2 1499
2 1501
5 1506
5 1511
2 1513
2 1515
5 1520
6 1526
5 1531
3 1534
2 1536
6 1542
2 1544
2 1546
5 1551
2 1553
5 1558
7 1565
2 1567

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
268	AB	72	DVANI	DC	01A000	5		1572	
269	AB	73	DVRES1	DCW	0	6		1578	
270	AB	74	QUOT1	DCW	0	8		1586	
271	AB	75	M234	DCW	-234	3		1589	
272	AB	76	P56	DCW	056	2		1591	
273	AB	77		DCW	0	3		1594	
274	AB	78	DVAN2	DC	-OM010	5		1599	
275	AB	79	M789	DCW	-789	3		1602	
276	AB	80	M5	DCW	-5	1		1603	
277	AB	81	GMBLN	DCW	0# 0	2		1605	
278	AB	82		DCW	0# 0	2		1607	
279	AB	83	DVAN3	DC	-L5G04	5		1612	
280	AB	84	P297	DCW	0297	3		1615	
281	AB	85	PO	DCW	00	1		1616	
282	AB	86		DCW	0	2		1618	
283	AB	87	DVAN4	DC	000297	5		1623	
284	AB	88	NINE6	DCW	0999999a	6		1629	
285	AB	89	ZSUP	DCW	0	8		1637	
286	AB	90	ZS1	DCW	0001.45	6		1643	
287	AB	91	ZSAN1	DCW	0	8		1651	
288	AB	92	ZS2	DCW	0120.4	6		1657	
289	AB	93	ZSAN2	DCW	0	8		1665	
290	AB	94	PLSMIN	DCW	00-0	2		1667	
291	AB	95	ZNTEST	DCW	0	2		1669	
292	AB	96	AB	DCW	0AB0	2		1671	
293	AB	97	ZNAN1	DCW	00K0	2		1673	
294	AB	98	ZNAN2	DCW	0AK0	2		1675	
295	AB	99		DCW	0AB#0	3		1678	
296	AC	00		DCW	0DEF0	3		1681	
297	AC	01	RCRES	DCW	0GH14	6		1687	
298	AC	02		DCW	0KLMNO0	5		1692	
299	AC	03	REC1	DCW	0PQRS0	5		1697	
300	AC	04		DC	0# 0	2		1699	
301	AC	05	MRCAN1	DCW	0QIRS# 0	6		1705	
302	AC	06	MRCAN2	DCW	0NOP0	3		1708	
303	AC	07	MRCAN3	DCW	0KLM0	3		1711	
304	AC	08		DCW	0TUVW0	4		1715	
305	AC	09	REC2	DCW	0XYZ*,00	6		1721	
306	AC	10		DCW	0# 0	2		1723	
307	AC	11	MRCAN4	DCW	0Z*,00	4		1727	
308	AC	12	MRCAN5	DCW	0WXY0	3		1730	
309	AC	13	MRCAN6	DCW	0TUV0	3		1733	
310	AC	14	MBFLD	DCW	0ABLMZ0	5		1738	
311	AC	15	MAFLD	DCW	0CNX0	3		1741	
312	AC	16	BFLRES	DCW	0ABLMZ0	5		1746	
313	AC	17	MBAN1	DCW	0ABCNX0	5		1751	
314	AC	18	NOZ	DC	0	1		1752	
315	AC	19	MAFLD1	DCW	0RSTU0	4		1756	
316	AC	20	MAFIRS	DCW	0RSTU0	4		1760	
317	AC	21	MBAN2	DCW	0BLMZ0	4		1764	

1410/7010-1401 CPU COMPATIBILITY TEST

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INSTRUCTION

OPERANDS

SFX CT

LOCN

LABEL OP

SEQ PG LIN

318	AC	22		DCW	2AB2	2	1766
319	AC	23	LBFLD	DCW	2CD2	2	1768
320	AC	24		DCW	2AB2	2	1770
321	AC	25	LBRES	DCW	2CD2	2	1772
322	AC	26	LAFLD	DCW	2QV2	3	1775
323	AC	27		DCW	2	2	1777
324	AC	28	STACK	DCW	2	2	1779
325	AC	29		DCW	2	2	1781
326	AC	30	STARES	DCW	2	2	1783
327	AC	31	CKSTA	DSA	2SETA	3	1786
328	AC	32	CKSTB	DSA	2ER43	3	1789
329	AC	33		DCW	212	1	1790
330	AC	34		DCW	222	1	1791
331	AC	35		DCW	232	1	1792
332	AC	36	CHNAS	DCW	242	1	1793
333	AC	37		DCW	212	1	1794
334	AC	38		DCW	222	1	1795
335	AC	39		DCW	232	1	1796
336	AC	40	CHNASR	DCW	242	1	1797
337	AC	41		DCW	212	1	1798
338	AC	42		DCW	222	1	1799
339	AC	43		DCW	252	1	1800
340	AC	44	AFCHN	DCW	232	1	1801
341	AC	45		DCW	2XX2	2	1803
342	AC	46		DCW	2YYY2	3	1806
343	AC	47		DCW	222	1	1807
344	AC	48	LMCHN	DCW	2WW2	2	1809
345	AC	49		DCW	2XX2	2	1811
346	AC	50		DCW	2YYY2	3	1814
347	AC	51		DCW	222	1	1815
348	AC	52	LMCHNR	DCW	2WW2	2	1817
349	AC	53		DCW	2AA2	2	1819
350	AC	54		DCW	288C2	4	1823
351	AC	55	LMAFLD	DCW	2DD2	2	1825
352	AC	56	MABFLD	DCW	200002	4	1829
353	AC	57	ZER4	DCW	200002	4	1833
354	AC	58	ONE4	DCW	211112	4	1837
355	AC	59	MAN1	DCW	201112	4	1841
356	AC	60	ZRTWO	DCW	212222	4	1845
357	AC	61	RESB1	DCW	21232	4	1849
358	AC	62		DCW	2OC22	4	1853
359	AC	63		DCW	2E412	4	1857
360	AC	64		DCW	2YMT2	4	1861
361	AC	65		DCW	2U1X2	4	1865
362	AC	66		DCW	2S3U2	4	1869
363	AC	67		DCW	2KW32	4	1873
364	AC	68		DCW	2J462	4	1877
365	AC	69		DCW	2A232	4	1881
366	AC	70	AAD1	DCW	2U5W2	4	1885
367	AC	71		DCW	24D22	4	1889

232
317

1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ	RG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
368	AC	72		DCM	2 3692	4		1893	
369	AC	73		DCM	2 ZN22	4		1897	
370	AC	74		DCM	2 M232	4		1901	
371	AC	75		DCM	2 F452	4		1905	
372	AC	76		DCM	2 LV22	4		1909	
373	AC	77		DCM	2 H572	4		1913	
374	AC	78		DCM	2 D562	4		1917	
375	AC	79	CKMVA	DSA	EBFLRES-004	3		1920	X42
376	AC	80	CKLDA	DSA	CLAFLD-003	3		1923	X72
377	AC	81	CK004	DSA	ERNDE008	3		1926	-36
378	AC	82	CK007	DSA	ERNGE007	3		1929	J11
379	AC	83	CK008	DCM	20092	3		1932	
380	AC	84	CK009	DCM	20132	3		1935	
381	AC	85	SWIND	DC	20000002	6		1941	
382	AC	86	SWIND1	DC	20000002	6		1947	
383	AC	87	XCK	DCM	2	9		1956	
384	AC	88	XCKAN	DCM	20130140152	9		1965	
385	AC	89	XA	DCM	2E1C2	3		1968	
386	AC	90	INTAB1	DCM	20152	3		1971	
387	AC	91		DCM	20112	3		1974	
388	AC	92		DCM	20062	3		1977	
389	AC	93	LPEND	DCM	20312	3		1980	

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ RG LIN LABEL OP OPERANDS

```

390 AC 95
391 AC 97
392 AC 98
393 AC 99
394 AD 00
395 AD 01
396 AD 02
397 AD 03
398 AD 04
399 AD 05
400 AD 06
401 AD 07
402 AD 08
403 AD 09
404 AD 10
405 AD 11
406 AD 12
407 AD 13
408 AD 14
409 AD 15
410 AD 16
411 AD 17
412 AD 18
413 AD 19
414 AD 20
415 AD 21
416 AD 22
417 AD 23
418 AD 24
419 AD 25
420 AD 26
421 AD 27
422 AD 28
423 AD 29
424 AD 30
425 AD 31
426 AD 32
427 AD 33
428 AD 34
429 AD 35
430 AD 36
431 AD 37
432 AD 38
433 AD 39
434 AD 40
435 AD 41
436 AD 42
437 AD 43
438 AD 44
439 AD 45

J08 1410/7010-1401 CPU COMPATIBILITY TEST
*****
CONTROL ROUTINE
1410 MODE
**
TYPE PROGRAM ID
AND HALT TO SET
COMPATIBILITY SW TO 1401
*****

ORG 2000
DCW 2J08000 2
DCW 2.2

GO TO 8000 TO
SET RESTART AND
TYPE PROG ID
HALT TO SET
COMPATIBILITY SW
TO 1401

CPU TEST
*****
INSTRUCTION READ-OUT
ZONE AND AUX. BIN ADDERS
COMPATIBILITY TRANSLATORS
INDEXING
SENSE SWITCHES
*****

THE FOLLOWING ROUTINES TITLED
RN001 RN010 ARE EXECUTED ONLY
ONCE DURING THE FIRST PROGRAM PASS
THE PURPOSE OF THESE ROUTINES IS
TO TEST THE BASIC INSTRUCTIONS USED
IN THE REMAINDER OF THE TEST FOR
INITIALIZATION, CONTROL & CHECK

RN001
EXECUTE NOP AND HALT INSTRUCTIONS
EXEC NOP
NORMAL HALT
SHOULD OCCUR
ONLY DURING 1ST
PASS OF PROG

1 2006
1 2007
1 2008 N
1 2009 .

```

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

440 AD 46
441 AD 47
442 AD 48
443 AD 49
444 AD 50
445 AD 51
446 AD 52
447 AD 53
448 AD 54
449 AD 55
450 AD 56
451 AD 57
452 AD 58
453 AD 59
454 AD 60
455 AD 61
456 AD 62
457 AD 63
458 AD 64
459 AD 65
460 AD 66
461 AD 67
462 AD 68
463 AD 69
464 AD 70
465 AD 71
466 AD 72
467 AD 73
468 AD 74
469 AD 75
470 AD 76
471 AD 77
472 AD 78
473 AD 79
474 AD 80
475 AD 81
476 AD 82
477 AD 83
478 AD 84
479 AD 85
480 AD 86
481 AD 87
482 AD 88
483 AD 89
484 AD 90
485 AD 91
486 AD 92
487 AD 93
488 AD 94
489 AD 95

PRESS START

R0002

EXECUTE NOP WITH A ADDR AND
HALT & BRANCH INSTRUCTIONNOP
H
ERRB
RNC4 2010 N -18
4 2014 . -19EXEC NOP
NORMAL HALT
SHOULD OCCUR
ONLY ONCE DURING
1ST PROG PASS
PRESS START
ERR HALT NOP
CAUSED A BR OR
HLT & BR INST
FAILED TO BR ON
PRESSING START

ERRB

H

1 2018 .

R0003

EXECUTE NOP & BRANCH INSTRUCTIONS

RNC
NOP
B
H
ERRC
RND4 2019 N -27
4 2023 B -28
1 2027 .EXEC NOP
OK-NO BRANCH
ERR HALT NOP
CAUSED A BRANCH
OR BR FAILED

R0004

EXECUTE NOP WITH A ADDR AND STORE
A ADDRESS USE COMPARE
AND BR ON EQ INSTRS TO CK STORED ADDRRND
NOP
SAR
C
BE
H
*E005
STK
STK,CK004
ROKD4 2028 N -36
4 2032 Q E7#
7 2036 C E7# 226
5 2043 B -49 S
1 2048 .EXEC NOP
STORE A ADDR
COMPARE
CK FOR EQUAL
ERR HALT
STORED ADDR IS
NOT CORRECT,EQ
LAT WAS NOT SET
ON COMPARE OR
BR ON EQ INSTR
FAILED TO BR
EX INST FOR LOOP
MODIFICATIONROKD
NOP
RND

4 2049 N -28

M011 PAGE 25

OPERANDS

INSTRUCTION

RN005
EXECU
WITH

RN006
EXECUTE COMPARE INST ON UNEQUAL
FIELDS AND TEST BR ON UNEQUAL

RN007
EXECUTE NOP WITH A&B ADDR AND
STORE B ADDR CK STORED ADDR

RN008
EXECUT
WORD M
INSTR
FOLLOW

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

OPERANDS

LABEL OP

SEQ PG LIN

SEQ PG LIN	LABEL	OP	OPERANDS	ZONE INSTR TO CK FOR WM AND ND WM	SFX CT	LOCN	INSTRUCTION
540 AE 46							
541 AE 47	RNH	SW	0010	SET WM IN LOC 10	4	2132	Q 010
542 AE 48		SAR	STK	STORE A ADDR	4	2136	Q E7#
543 AE 49		C	STK,CK008	CK STORED ADDR	7	2140	C E7# Z32
544 AE 50		BE	CKWM	CK FOR EQ	5	2147	B J53 S
545 AE 51		H		ERR HALT STORED	1	2152	.
546 AE 52				ADD IS INCORRECT			
547 AE 53		BWZ	WMOK,0010,1	CK FOR WM	8	2153	V J62 010 1
548 AE 54		H		WM FAILED TO SET	1	2161	.
549 AE 55				OR BWZ INSTR			
550 AE 56				FAILED			
551 AE 57		CW	0010	CLR WM IN LOC 10	4	2162	Q 010
552 AE 58	WMOK	SAR	STK	STORE A ADDR	4	2166	Q E7#
553 AE 59		C	STK,CK008	CK STORED ADDR	7	2170	C E7# Z32
554 AE 60		BE	CKWM	CK FOR EQ	5	2177	B J83 S
555 AE 61		H		ERR HALT STORED	1	2182	.
556 AE 62				ADD IS INCORRECT			
557 AE 63		BWZ	ERRH,0010,1	CK FOR WM	8	2183	V J95 010 1
558 AE 64		8	ROKH	OK-NO WM	4	2191	B J96
559 AE 65	ERRH	H		ERR WM FAILED TO	1	2195	.
560 AE 66				CLR DR BWZ INSTR			
561 AE 67				FAILED			
562 AE 68		NOP	RNH	EX INST FOR LOOP	4	2196	V J32
563 AE 69				MODIFICATION			
564 AE 70							
565 AE 71							
566 AE 72							
567 AE 73							
568 AE 74							
569 AE 75							
570 AE 76							
571 AE 77							
572 AE 78							
573 AE 79	RNI	CW	0010	CLR WM IN LOC 10	4	2200	Q 010
574 AE 80		SAR	STK	STORE A ADDR	4	2204	Q E7#
575 AE 81		MA	BUMP,STK	EXEC MODIFY ADDR	7	2208	# T92 E7#
576 AE 82		C	STK,CK009	CK RESULT	7	2215	C E7# Z35
577 AE 83		BE	ROKI	CK FOR EQUAL	5	2222	B K28 S
578 AE 84		H		ERR HALT STORED	1	2227	.
579 AE 85				ADD IS INCORRECT			
580 AE 86		NOP	RNI	EX INST FOR LOOP	4	2228	N K00
581 AE 87				MODIFICATION			
582 AE 88							
583 AE 89							
584 AE 90							
585 AE 91							
586 AE 92							
587 AE 93							
588 AE 94							
589 AE 95							

RN009
USE CLEAR WM AND SAR INSTRS
TO SET UP ADDR THEN EXECUTE
MODIFY ADDR OP TO INCREASE
ADDR BY 4 CK RESULT FOR 013

RN010
EXECUTE BR ON INQUIRY INSTR
PROG WILL HALT IF LAT HAD
BEEN SET PRESSING START
SHOULD ALLOW PROG TO CONTINUE

1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
590	AE	96	RNJ	BIN	STOPJ.Q				
591	AE	97		B	R0KJ			2232	B K41 Q
592	AE	98	STOPJ	H	RNJ			2237	B K45
593	AE	99						2241	. K32
594	AF	00							
595	AF	01							
596	AF	02	R0KJ	NOP	RNJ			2245	N K32
597	AF	03							

EXEC BR ON INQ
OK-LAT IS OFF
PROG MAY HALT
HERE ONCE IF INQ
LAT WAS SET
PRESS START
EX INST FOR LOOP
MODIFICATION

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

598 AF 05 JOB 1410/7010-1401 CPU COMPATIBILITY TEST

599 AF 07
600 AF 08
601 AF 09
602 AF 10
603 AF 11
604 AF 12
605 AF 13
606 AF 14
607 AF 15
608 AF 16
609 AF 17
610 AF 18
611 AF 19
612 AF 20
613 AF 21
614 AF 22
615 AF 23
616 AF 24
617 AF 25
618 AF 26
619 AF 27
620 AF 28
621 AF 29
622 AF 30
623 AF 31
624 AF 32
625 AF 33
626 AF 34
627 AF 35
628 AF 36
629 AF 37
630 AF 38
631 AF 39
632 AF 40
633 AF 41
634 AF 42
635 AF 43
636 AF 44
637 AF 45
638 AF 46
639 AF 47
640 AF 48
641 AF 49
642 AF 50
643 AF 51
644 AF 52
645 AF 53
646 AF 54
647 AF 55

ALL REMAINING ROUTINES IN THIS TEST

COMMUNICATE WITH TWO CONTROL ROUTINES

LABELED TYP1 AND LOOPCK TO TEST TADS

FOR ERR INDICATION, HALT ON ERROR AND

LOOPING ROUTINES - TESTS ARE ALSO MADE

FOR INQUIRY

POST RESTART FOR EACH ROUTINE IS

MAINTAINED IN LOC 00001-00004

COMPUTER RESET AND START THEREFORE

MAY BE USED TO RESTART ANY ROUTINE

RESET & RESTART CONTROL ALONG WITH

TAD1 MAY BE USED TO LOOP ROUTINES

CAUSING SYSTEM CHECK ERRORS

RN011

EXECUTE MOVE CHAR TO A OR B WM

STOP WITH B FIELD WM

*E005

0004

MAFLD1

BFLRES, MAFLD1

MAFLD1, MBAN2

NXCL

TDC1

LOOPCK, NOZ,

TYP1

NOP

SAR

SBR

MCW

C

BE

B

8CE

B

NXCL

TDC1

RN1

SET ROUT. START

ADDR IN LOC 2-4

RESET B FIELD

EXEC MOVE

CK RESULT

OK

ERROR

CK FOR BLANK

ERR CK FOR TYPE

RESULT OF MOVE

SHOULD BE

BLANK-BLMZ

4 2249 N K57
4 2253 Q 004
4 2257 H X56
7 2261 M X46 X56
7 2268 C X56 X64
5 2275 B K84 S
4 2280 B K92
8 2284 B T62 X52
4 2292 B S89

RN012
EXECUTE LOAD CHAR TO A FLD WM

*E005
0004
LBFLD
LBFLD-001
LAFLD, LBFLD
LBFLD, LAFLD
NXCL
TDC2
LOOPCK, LBFLD-003,
TYP1

NOP
SAR
SBR
SW
LCA
C
BE
B
BCE
B

NXC2
TDC2

SET ROUT. START
ADDR IN LOC 2-4
RESET
B FIELD
EXEC LOAD
CK RESULT
OK
ERROR
CK FOR A
ERR CK FOR TYPE
OUTPUT FIELD

4 2296 N L04
4 2300 Q 004
4 2304 H X68
4 2308 * X67
7 2312 L X75 X68
7 2319 C X68 X75
5 2326 B L35 S
4 2331 B L43
8 2335 B T62 X65 A
4 2343 B S89

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

SHOULD BE
A/WM G/WM QV

```

648 AF 56
649 AF 57
650 AF 58
651 AF 59
652 AF 60
653 AF 61
654 AF 62
655 AF 63
656 AF 64
657 AF 65
658 AF 66
659 AF 67
660 AF 68
661 AF 69
662 AF 70
663 AF 71
664 AF 72
665 AF 73
666 AF 74
667 AF 75
668 AF 76
669 AF 77
670 AF 78
671 AF 79
672 AF 80
673 AF 81
674 AF 82
675 AF 83
676 AF 84
677 AF 85
678 AF 86
679 AF 87
680 AF 88
681 AF 89
682 AF 90
683 AF 91
684 AF 92
685 AF 93
686 AF 94
687 AF 95
688 AF 96
689 AF 97
690 AF 98
691 AF 99
692 AG 00
693 AG 01
694 AG 02
695 AG 03
696 AG 04
697 AG 05

```

RN013
EXECUTE COMPARE OP WITH FIELDS EQUAL

*E005
0004
FLDA,FLDBEQ
TADCK3
TADCK3
TADCK3
LOOPCK
TYP1

NOP
SAR
C
BH
BL
BU
BE
TADCK3 B

SET ROUT. START
ADDR IN LOC 2-4
COMPARE EQ FLDS
CK FOR HIGH
CK FOR LOW
CK FOR UNEQUAL
CK FOR EQUAL
ERR CK FOR TYPE
COMPARE
DID NOT CAUSE
BRANCH ON EQ

4 2347 N L55
4 2351 Q 004
7 2355 C U17 U20
5 2362 B L82 U
5 2367 B L82 T
5 2372 B L82 /
5 2377 B T62 S
4 2382 B S89

RN014
EXECUTE COMPARE OP WITH B FIELD HIGH

```

671 AF 79
672 AF 80
673 AF 81
674 AF 82
675 AF 83
676 AF 84
677 AF 85
678 AF 86
679 AF 87
680 AF 88
681 AF 89
682 AF 90
683 AF 91
684 AF 92
685 AF 93
686 AF 94
687 AF 95
688 AF 96
689 AF 97
690 AF 98
691 AF 99
692 AG 00
693 AG 01
694 AG 02
695 AG 03
696 AG 04
697 AG 05

```

RN014
EXECUTE COMPARE OP WITH B FIELD HIGH

*E005
0004
FLDA,FLOBHI
TADCK4
TADCK4
TADCK4
TYP1

NOP
SAR
C
BE
BL
BH
TADCK4 B

SET ROUT. START
ADDR IN LOC 2-4
COMP-B FLD HI
CK FOR EQUAL
CK FOR LOW
CK FOR HIGH
ERR CK FOR TYPE
COMPARE
DID NOT CAUSE
BRANCH ON HI

4 2386 N L94
4 2390 Q 004
7 2394 C U17 U24
5 2401 B M16 S
5 2406 B M16 T
5 2411 B T62 U
4 2416 B S89

RN015
EXECUTE COMPARE OP WITH B FIELD LOW

```

671 AF 79
672 AF 80
673 AF 81
674 AF 82
675 AF 83
676 AF 84
677 AF 85
678 AF 86
679 AF 87
680 AF 88
681 AF 89
682 AF 90
683 AF 91
684 AF 92
685 AF 93
686 AF 94
687 AF 95
688 AF 96
689 AF 97
690 AF 98
691 AF 99
692 AG 00
693 AG 01
694 AG 02
695 AG 03
696 AG 04
697 AG 05

```

RN015
EXECUTE COMPARE OP WITH B FIELD LOW

*E005
0004
FLDA,FLOBLO
TADCK5
TADCK5
TADCK5
TYP1

NOP
SAR
C
BE
BH
BL
TADCK5 B

SET ROUT. START
ADDR IN LOC 2-4
COMP-B FLD LOW
CK FOR EQUAL
CK FOR HIGH
CK FOR LOW
ERR CK FOR TYPE
COMPARE
DID NOT CAUSE
BRANCH ON LOW

4 2420 N M28
4 2424 Q 004
7 2428 C U17 U27
5 2435 B M50 S
5 2440 B M50 U
5 2445 B T62 T
4 2450 B S89

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SEQ	PG	LN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
748	AG	56		BWZ	TADCK8,FLOBHI-002,1				
749	AG	57		BWZ	TADCK8,FLOBHI-002,2				
750	AG	58		BWZ	TADCK8,FLOBHI-002,K				
751	AG	59		BWZ	TADCK8,FLOBHI-002,S				
752	AG	60		BWZ	TADCK8,FLOBHI-002,3				
753	AG	61		BWZ	TADCK8,FLOBHI-002,L				
754	AG	62		BWZ	TADCK8,FLOBHI-002,T				
755	AG	63		BWZ	LOOPCK,FLOBHI-002,B				
756	AG	64			TYPI				
757	AG	65							
758	AG	66							
759	AG	67							
760	AG	68							
761	AG	69							
762	AG	70							
763	AG	71							
764	AG	72							
765	AG	73							
766	AG	74							
767	AG	75							
768	AG	76							
769	AG	77							
770	AG	78							
771	AG	79							
772	AG	80							
773	AG	81							
774	AG	82							
775	AG	83							
776	AG	84							
777	AG	85							
778	AG	86							
779	AG	87							
780	AG	88							
781	AG	89							
782	AG	90							
783	AG	91							
784	AG	92							
785	AG	93							
786	AG	94							
787	AG	95							
788	AG	96							
789	AG	97							
790	AG	98							
791	AG	99							
792	AM	00							
793	AM	01							
794	AM	02							
795	AM	03							
796	AM	04							
797	AM	05							

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

BRANCHED ON B.A,
8,4,2 DR 1 BITS

798 AH 06
799 AH 07
800 AH 08
801 AH 09
802 AH 10
803 AH 11
804 AH 12
805 AH 13
806 AH 14
807 AH 15
808 AH 16
809 AH 17
810 AH 18
811 AH 19
812 AH 20
813 AH 21
814 AH 22
815 AH 23
816 AH 24
817 AH 25
818 AH 26
819 AH 27
820 AH 28
821 AH 29
822 AH 30
823 AH 31
824 AH 32
825 AH 33
826 AH 34
827 AH 35
828 AH 36
829 AH 37
830 AH 38
831 AH 39
832 AH 40
833 AH 41
834 AH 42
835 AH 43
836 AH 44
837 AH 45
838 AH 46
839 AH 47
840 AH 48
841 AH 49
842 AH 50
843 AH 51
844 AH 52
845 AH 53
846 AH 54
847 AH 55

RN021
EXECUTE SET WORD MARK AND CLEAR WORD
MARK INSTRUCTIONS

NOP	*E005	4	2722	N P30
SAR	0004	4	2726	Q 004
SW	TWM,TWME001	7	2730	, P37 P38
DC	2N2	1	2737	
DC	2N2	1	2738	
8CE	RK11A,TWM,N	8	2739	B P51 P37 N
8	TDCK11	4	2747	B P90
8CE	RK11B,TWME001,N	8	2751	B P63 P38 N
8	TDCK11	4	2759	B P90
CW	TWM,TWME001	7	2763	□ P37 P38
8WZ	TDCK11,TWM,1	8	2770	V P90 P37 1
8WZ	TDCK11,TWME001,1	8	2778	V P90 P38 1
8	LOOPCK	4	2786	B T62
TDCK11 B	TYPI	4	2790	B S89

SET ROUT. START
ADDR IN LOC 2-4
EXEC SET WM INST

TD SET WM
TEST FOR N
ERROR
TEST FOR N
ERROR

EXEC CL WM INST
CK FOR WM
CK FOR WM
CK FOR LDOP
ERR CK FOR TYPE
SW CHANGED CHAR
DR CW DID NOT
CLEAR WM

RN022
EXECUTE ADD OP TRUE ADD

NOP	*E005	4	2794	N Q02
SAR	0004	4	2798	Q 004
LCA	PA11, TESAD	7	2802	L U53 U32
A	P654, TESAD	7	2809	A U35 U32
C	TESAD,PG65	7	2816	C U32 U56
BE	LOOPCK	5	2823	B T62 S
B	TYPI	4	2828	B S89

SET ROUT. START
ADDR IN LOC 2-4
SET BFLD TO EALL
ADD E654
COMP RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
DF ADD SHOULD BE
G65

RN023
EXECUTE ADD OP XCOMPLIMENT ADD

NOP	*E005	4	2832	N Q40
SAR	0004	4	2836	Q 004
LCA	PCB1, TESAD	7	2840	L U59 U32

SET ROUT. START
ADDR IN LOC 2-4
SET BFLD TO ECB1

SEQ	RG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
898	AI	06							
899	AI	07							NOT RESET
900	AI	08	ADD16	LCA	P987, TESAD	7		2969	L U47 U32
901	AI	09		A	P321, TESAD	7		2976	A U41 U32
902	AI	10		BAV	LOOPCK	5		2983	B T62 Z
903	AI	11		B	TYPI	4		2988	B S89
904	AI	12							FAILED TO SET
905	AI	13							OVERFLOW
906	AI	14							
907	AI	15							
908	AI	16							
909	AI	17							
910	AI	18		NOP	*E005	4		2992	N E00
911	AI	19		SAR	0004	4		2996	Q 004
912	AI	20		LCA	P666, TESAD	7		3000	L U50 U32
913	AI	21		S	M321, TESAD	7		3007	S U44 U32
914	AI	22		C	TESAD, P987	7		3014	C U32 U47
915	AI	23		BE	LOOPCK	5		3021	B T62 S
916	AI	24		B	TYPI	4		3026	B S89
917	AI	25							SET ROUT. START
918	AI	26							ADDR IN LOC 2-4
919	AI	27							SET BELD TO E666
920	AI	28							SUB -321
921	AI	29							COMP RESULT
922	AI	30							CK FOR EQUAL
923	AI	31							ERR CK FOR TYPE
924	AI	32							RESULT
925	AI	33							OF SUB SHOULD BE
926	AI	34							986
927	AI	35							
928	AI	36							
929	AI	37							
930	AI	38							
931	AI	39							
932	AI	40							
933	AI	41							
934	AI	42							
935	AI	43							
936	AI	44							
937	AI	45							
938	AI	46							
939	AI	47							
940	AI	48							
941	AI	49							
942	AI	50							
943	AI	51							
944	AI	52							
945	AI	53							
946	AI	54							
947	AI	55							

RN027
EXECUTE SUBTRACT OP

RN028
EXECUTE SUBTRACT OP 30NE FIELD

RN029
EXECUTE ZERO AND ADD 32 FIELDS

SET ROUT. START
ADDR IN LOC 2-4
SET B FLD TO 987
ZA PCBI
COMP RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT

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SFX CT LOCN INSTRUCTION

OPERANDS

SEQ PG LIN LABEL OP

```
948 AI 56
949 AI 57
950 AI 58
951 AI 59
952 AI 60
953 AI 61
954 AI 62
955 AI 63
956 AI 64
957 AI 65
958 AI 66
959 AI 67
960 AI 68
961 AI 69
962 AI 70
963 AI 71
964 AI 72
965 AI 73
966 AI 74
967 AI 75
968 AI 76
969 AI 77
970 AI 78
971 AI 79
972 AI 80
973 AI 81
974 AI 82
975 AI 83
976 AI 84
977 AI 85
978 AI 86
979 AI 87
980 AI 88
981 AI 89
982 AI 90
983 AI 91
984 AI 92
985 AI 93
986 AI 94
987 AI 95
988 AI 96
989 AI 97
990 AI 98
991 AI 99
992 AJ 00
993 AJ 01
994 AJ 02
995 AJ 03
996 AJ 04
997 AJ 05
```

OF ZA SHOULD BE
32A

RN030
EXECUTE ZERO AND SUBTRACT #2 FIELDS
WITH B FLD LONGER THAN A FIELD

*E005
0004
ZSBSET,ZSTEST
PG65,ZSTEST
ZSTEST,ZSCOMP
LOOPCK
TYPI

NOP
SAR
LCA
ZS
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
SET BFLD ZSET
ZA EG65
COMP RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF ZS SHOULD BE
0076N

4 3103 M A11
4 3107 Q 004
7 3111 L U64 U69
7 3118 - U56 U69
7 3125 C U69 U74
5 3132 B T62 S
4 3137 B S89

RN031
EXECUTE ZERO AND ADD #1 FIELDS

*E005
0004
NES, TESAD
TESAD
TESAD, P987
LOOPCK
TYPI

NOP
SAR
LCA
ZA
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
SET FLD TO E987
EXEC ZA
COMP RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF ZA SHOULD BE
986

4 3141 N A49
4 3145 Q 004
7 3149 L U77 U32
4 3156 C U32
7 3160 C U32 U47
5 3167 B T62 S
4 3172 B S89

RN032
EXECUTE ZERO AND SUBTRACT #1 FIELDS

*E005
0004
ABC, TESAD
TESAD
TESAD, M123
LOOPCK
TYPI

NOP
SAR
LCA
ZS
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
SET FLD TO ABC
EXEC ZS
COMP RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF ZS SHOULD BE
12L

4 3176 N A84
4 3180 Q 004
7 3184 L U80 U32
4 3191 - U32
7 3195 C U32 U83
5 3202 B T62 S
4 3207 B S89

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
998 AJ 06							
999 AJ 07							
1000 AJ 08							
1001 AJ 09							
1002 AJ 10							
1003 AJ 11							
1004 AJ 12							
1005 AJ 13							
1006 AJ 14							
1007 AJ 15							
1008 AJ 16							
1009 AJ 17							
1010 AJ 18							
1011 AJ 19							
1012 AJ 20							
1013 AJ 21							
1014 AJ 22							
1015 AJ 23							
1016 AJ 24							
1017 AJ 25							
1018 AJ 26							
1019 AJ 27							
1020 AJ 28							
1021 AJ 29							
1022 AJ 30							
1023 AJ 31							
1024 AJ 32							
1025 AJ 33							
1026 AJ 34							
1027 AJ 35							
1028 AJ 36							
1029 AJ 37							
1030 AJ 38							
1031 AJ 39							
1032 AJ 40							
1033 AJ 41							
1034 AJ 42							
1035 AJ 43							
1036 AJ 44							
1037 AJ 45							
1038 AJ 46							
1039 AJ 47							
1040 AJ 48							
1041 AJ 49							
1042 AJ 50							
1043 AJ 51							
1044 AJ 52							
1045 AJ 53							
1046 AJ 54							
1047 AJ 55							

RN033 EXECUTE MULTIPLY INSTR MULTIPLY £11 X £22							
NOP			*£005				SET ROUT. START
SAR			0004		4	3211	N B19
LCA			P99999,PROD		4	3215	Q 004
LCA			P11,PROD-003		7	3219	L V31 U97
M			P22,PROD		7	3226	L U85 U94
C			PROD,MULAN1		7	3233	Q U87 U97
BE			LOOPCK		7	3240	C U97 U92
B			TYPI		5	3247	B T62 S
					4	3252	B S89
SET ROUT. START ADDR IN LOC 2-4 SET PROD TO 95 LOAD MULTIPLIER MULTIPLY CK RESULT CK FOR EQUAL ERR CK FOR TYPE RESULT OF MULT SHOULD BE 0024B							
RN034 EXECUTE MULTIPLY INSTR MULTIPLY £87 X £96							
NOP			*£005				SET ROUT. START
SAR			0004		4	3256	N B64
LCA			A5,PROD		4	3260	Q 004
LCA			P87,PROD-003		7	3264	L V11 U97
M			P96,PROD		7	3271	L U99 U94
C			PROD,MULAN2		7	3278	Q V01 U97
BE			LOOPCK		7	3285	C U97 V06
B			TYPI		5	3292	B T62 S
					4	3297	B S89
SET ROUT. START ADDR IN LOC 2-4 SET PROD TO AS LOAD MULTIPLIER MULTIPLY CK RESULT CK FOR EQUAL ERR CK FOR TYPE RESULT OF MULT SHOULD BE 0835B							
RN035 EXECUTE MULTIPLY INSTR MULTIPLY 2 UNSIGNED QUANTITIES							
NOP			*£005				SET ROUT. START
SAR			0004		4	3301	N C09
LCA			P99999,PROD		4	3305	Q 004
LCA			THRUV,PROD-003		7	3309	L V31 U97
M			TWFR,PROD		7	3316	L V15 U94
C			PROD,MULAN3		7	3323	Q V13 U97
BE			LOOPCK		7	3330	C U97 V20
B			TYPI		5	3337	B T62 S
					4	3342	B S89
SET ROUT. START ADDR IN LOC 2-4 SET PROD TO 95 LOAD MULTIPLIER MULTIPLY CK RESULT CK FOR EQUAL ERR CK FOR TYPE RESULT OF MULT SHOULD BE 0084E							

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SFX CT LOCN INSTRUCTION

OPERANDS

CP

73847

SEQ PG LIN

IC48	AJ 56
1049	AJ 57
1050	AJ 58
1051	AJ 59
1052	AJ 60
1053	AJ 61
1054	AJ 62
1055	AJ 63
1056	AJ 64
1057	AJ 65
1058	AJ 66
1059	AJ 67
1060	AJ 68
1061	AJ 69
1062	AJ 70
1063	AJ 71
1064	AJ 72
1065	AJ 73
1066	AJ 74
1067	AJ 75
1068	AJ 76
1069	AJ 77
1070	AJ 78
1071	AJ 79
1072	AJ 80
1073	AJ 81
1074	AJ 82
1075	AJ 83
1076	AJ 84
1077	AJ 85
1078	AJ 86
1079	AJ 87
1080	AJ 88
1081	AJ 89
1082	AJ 90
1083	AJ 91
1084	AJ 92
1085	AJ 93
1086	AJ 94
1087	AJ 95
1088	AJ 96
1089	AJ 97
1090	AJ 98
1091	AJ 99
1092	AK 00
1093	AK 01
1094	AK 02
1095	AK 03
1096	AK 04
1097	AK 05

RN036	EXECUTE MULTIPLY INSTR
MULTIPLY JKL -123	X P47
*E005	
0004	
P99999,PRODA-001	
P47,PRODA-004	
JKL,PRODA	
PRODA,MULAN4	
LOOPCK	
TYP1	
NOP	
SAR	
LCA	
LCA	
M	
C	
BE	
B	

SET ROUT. START	
ADDR IN LOC 2-4	
SET PROD TO 9S	
LOAD MULTIPLIER	
MULTIPLY	
CK RESULT	
ERR CK FOR EQUAL	
RESULT	
OF MULT SHOULD	
BE 00578J	

4	3346	N C54
4	3350	Q 004
7	3354	L V31 V25
7	3361	L V36 V22
7	3368	a V34 V26
7	3375	C V26 V42
5	3382	B T62 S
4	3387	B S89

RN037	EXECUTE MULTIPLY INSTR
MULTIPLY -31 X -00	
*E005	
0004	
P99999,PROD	
M31,PROD-003	
M00,PROD	
PROD,MULANS	
LOOPCK	
TYP1	
NOP	
SAR	
LCA	
LCA	
M	
C	
BE	
B	

SET ROUT. START	
ADDR IN LOC 2-4	
SET PROD TO 9S	
LOAD MULTIPLIER	
MULTIPLY	
CK RESULT	
ERR CK FOR TYPE	
RESULT	
OF MULT SHOULD	
BE 0000E	

4	3391	N C99
4	3395	Q 004
7	3399	L V31 U97
7	3406	L V44 U94
7	3413	a V46 U97
7	3420	C U97 V51
5	3427	B T62 S
4	3432	B S89

RN038	EXECUTE DIVIOE INSTR
DIVIOE P11 BY PO1	
*E005	
0004	
DVRES,QUOT	
P11,QUOT	
P01,QUOT-001	
QUOT,DVAN1	
LOOPCK	
TYP1	
NOP	
SAR	
MCW	
MCW	
O	
C	
BE	
B	

SET ROUT. START	
ADDR IN LOC 2-4	
BLANK FIELO	
LOAD OIVEDENO	
DIVIDE	
CK RESULT	
ERR CK FOR TYPE	
RESULT	
OF OIV SHOULD BE	
1A00E	

4	3436	N D44
4	3440	Q 004
7	3444	M V58 V65
7	3451	M U85 V65
7	3458	x V53 V64
7	3465	C V65 V72
5	3472	B T62 S
4	3477	B S89

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SEQ PG LIN LABEL : OP

1098 AK 06
1099 AK 07
1100 AK 08
1101 AK 09
1102 AK 10
1103 AK 11
1104 AK 12
1105 AK 13
1106 AK 14
1107 AK 15
1108 AK 16
1109 AK 17
1110 AK 18
1111 AK 19
1112 AK 20
1113 AK 21
1114 AK 22
1115 AK 23
1116 AK 24
1117 AK 25
1118 AK 26
1119 AK 27
1120 AK 28
1121 AK 29
1122 AK 30
1123 AK 31
1124 AK 32
1125 AK 33
1126 AK 34
1127 AK 35
1128 AK 36
1129 AK 37
1130 AK 38
1131 AK 39
1132 AK 40
1133 AK 41
1134 AK 42
1135 AK 43
1136 AK 44
1137 AK 45
1138 AK 46
1139 AK 47
1140 AK 48
1141 AK 49
1142 AK 50
1143 AK 51
1144 AK 52
1145 AK 53
1146 AK 54
1147 AK 55

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SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1198 AL 06		LCA	A5,0102				
1199 AL 07		LCA	A5,0107				
1200 AL 08		CS	0107				
1201 AL 09		C	0107,CLK				
1202 AL 10		BE	LOOPCK				
1203 AL 11		B	TYPI				
1204 AL 12							
1205 AL 13							
1206 AL 14							
1207 AL 15							
1208 AL 16							
1209 AL 17							
1210 AL 18							
1211 AL 19							
1212 AL 20		NOP	*E005				
1213 AL 21		SAR	0004				
1214 AL 22		LCA	PLSMIN,ZNTEST				
1215 AL 23		MN	AB,ZNTEST				
1216 AL 24		C	ZNTEST,ZNANI				
1217 AL 25		BE	LOOPCK				
1218 AL 26		B	TYPI				
1219 AL 27							
1220 AL 28							
1221 AL 29							
1222 AL 30							
1223 AL 31							
1224 AL 32							
1225 AL 33							
1226 AL 34							
1227 AL 35		NOP	*E005				
1228 AL 36		SAR	0004				
1229 AL 37		LCA	AB,ZNTEST				
1230 AL 38		MN	PLSMIN,ZNTEST				
1231 AL 39		C	ZNTEST,ZNAN2				
1232 AL 40		BE	LOOPCK				
1233 AL 41		B	TYPI				
1234 AL 42							
1235 AL 43							
1236 AL 44							
1237 AL 45							
1238 AL 46							
1239 AL 47							
1240 AL 48							
1241 AL 49							
1242 AL 50							
1243 AL 51		NOP	*E005				
1244 AL 52		SAR	0004				
1245 AL 53		LCA	RCRES,MVREC				
1246 AL 54		LCA	RCRES-006,MVREC-006				
1247 AL 55		LCA	RCRES-009,MVREC-009				

RN045
EXECUTE MOVE NUMERIC

RN046
EXECUTE MOVE ZONE

RN047
EXECUTE MOVE CHAR TO RECORD
OR GROUP MARK USING REC MARK

MV A5 TO 98-102
MV A5 TO 103-107
CLEAR STORAGE
CK CLEAR AREA
CK FOR EQUAL
ERR CK FOR TYPE
LOCS. 00098
-00107 SHOULD BE
AA AND 8 BLANKS

SET ROUT. START
ADDR IN LOC 2-4
MV E- TO WK AREA
MOVE NUMERIC
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MN SHOULD BE
EK

SET ROUT. START
ADDR IN LOC 2-4
MV AB TO WK AREA
MOVE ZONE
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MZ SHOULD BE
AK

SET ROUT. START
ADDR IN LOC 2-4
RESTORE
B
FIELD

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SFX CT LOCN INSTRUCTION

OPERANDS

LABEL OP

SEQ PG LIN

1248 AL 56	MCM	REC1-009,MVREC-011	MOVE RECORD	7 3881	P W88 E9X
1249 AL 57	C	MVREC,MRCAN1	CK RESULT	7 3888	C FOY X05
1250 AL 58	BE	SCK37	CK FOR EQUAL	5 3895	B I04 S
1251 AL 59	B	TDCK37	ERROR	4 3900	B I32
1252 AL 60	C	MVREC-006,MRCAN2	CK RESULT	7 3904	C FOS X08
1253 AL 61	BE	TCK37	CK FOR EQUAL	5 3911	B I20 S
1254 AL 62	B	TDCK37	ERROR	4 3916	B I32
1255 AL 63	C	MVREC-009,MRCAN3	CK RESULT	7 3920	C E9Z X11
1256 AL 64	BE	LOOPCK	CK FOR EQUAL	5 3927	B T62 S
1257 AL 65	B	TYPI	ERR CK FOR TYPE	4 3932	B S89
1258 AL 66			RESULT		
1259 AL 67			OF MCM SHOULD BE		
1260 AL 68			KLHNOPOQ RS*		
1261 AL 69					
1262 AL 70					
1263 AL 71					
1264 AL 72					
1265 AL 73					
1266 AL 74					
1267 AL 75					
1268 AL 76					
1269 AL 77					
1270 AL 78					
1271 AL 79					
1272 AL 80					
1273 AL 81					
1274 AL 82					
1275 AL 83					
1276 AL 84					
1277 AL 85					
1278 AL 86					
1279 AL 87					
1280 AL 88					
1281 AL 89					
1282 AL 90					
1283 AL 91					
1284 AL 92					
1285 AL 93					
1286 AL 94					
1287 AL 95					
1288 AL 96					
1289 AL 97					
1290 AL 98					
1291 AL 99					
1292 AM 00					
1293 AM 01					
1294 AM 02					
1295 AM 03					
1296 AM 04					
1297 AM 05					

RNO48
EXECUTE MOVE CHAR TO RECORD
OR GROUP MARK USING GROUP MARK

1248 AL 56	NOP	*E005	SET ROUT. START	4 3936	N I44
1249 AL 57	SAR	0004	ADDR IN LOC 2-4	4 3940	Q 004
1250 AL 58	LCA	RCRES,MVREC	RESTORE	7 3944	L W87 FOY
1251 AL 59	LCA	RCRES-006,MVREC-006	B FIELD	7 3951	L W81 FOS
1252 AL 60	MCM	RCRES-009,MVREC-009	MOVE RECORD	7 3958	L W78 E9Z
1253 AL 61	C	REC2-009,MVREC-011	CK RESULT	7 3965	P X12 E9X
1254 AL 62	BE	MVREC,GMBLN	CK FOR EQUAL	7 3972	C FOY W05
1255 AL 63	B	SCK38	ERROR	5 3979	B I88 S
1256 AL 64	B	TDCK38	CK RESULT	4 3984	B 03S
1257 AL 65	C	MVREC-002,MRCAN4	CK FOR EQUAL	7 3988	C FOM X27
1258 AL 66	BE	TCK38	ERROR	5 3995	B 00U S
1259 AL 67	B	TDCK38	CK RESULT	4 4000	B 03S
1260 AL 68	C	MVREC-006,MRCAN5	CK FOR EQUAL	7 4004	C FOS X30
1261 AL 69	BE	FCK38	ERROR	5 4011	B 02# S
1262 AL 70	B	TDCK38	CK RESULT	4 4016	B 03S
1263 AL 71	C	MVREC-009,MRCAN6	CK FOR EQUAL	7 4020	C E9Z X33
1264 AL 72	BE	LOOPCK	ERR CK FOR TYPE	5 4027	B T62 S
1265 AL 73	B	TYPI	RESULT	4 4032	B S89
1266 AL 74			OF MCM SHOULD BE		
1267 AL 75			TUVWXYZ*.*		
1268 AL 76					
1269 AL 77					
1270 AL 78					
1271 AL 79					
1272 AL 80					
1273 AL 81					
1274 AL 82					
1275 AL 83					
1276 AL 84					
1277 AL 85					
1278 AL 86					
1279 AL 87					
1280 AL 88					
1281 AL 89					
1282 AL 90					
1283 AL 91					
1284 AL 92					
1285 AL 93					
1286 AL 94					
1287 AL 95					
1288 AL 96					
1289 AL 97					
1290 AL 98					
1291 AL 99					
1292 AM 00					
1293 AM 01					
1294 AM 02					
1295 AM 03					
1296 AM 04					
1297 AM 05					

RNO49
EXECUTE MOVE CHAR TO A OR B WD MRK
STOP WITH A FLD WORD MARK

1248 AL 56	NOP	*E005	SET ROUT. START	4 4036	N 04U
1249 AL 57	SAR	0004	ADDR IN LOC 2-4	4 4040	Q 004
1250 AL 58	LCA	BFLRES,M8FLD	RESTORE B FIELD	7 4044	L X46 X38
1251 AL 59	MCM	MAFLD,M8FLD	MOVE TO A WD MRK	7 4051	M X41 X38

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1298	AM	06		C	MBFLO,MBANI				
1299	AM	07		BE	LOOPCK				
1300	AM	08		B	TYPI				
1301	AM	09							CK RESULT
1302	AM	10							CK FOR EQUAL
1303	AM	11							ERR CK FOR TYPE
1304	AM	12							RESULT
1305	AM	13							OF MOVE SHOULD
1306	AM	14							BE ABCNX
1307	AM	15							
1308	AM	16							
1309	AM	17							
1310	AM	18							
1311	AM	19							
1312	AM	20							
1313	AM	21							
1314	AM	22							
1315	AM	23							
1316	AM	24							
1317	AM	25							
1318	AM	26							
1319	AM	27							
1320	AM	28							
1321	AM	29							
1322	AM	30							
1323	AM	31							
1324	AM	32							
1325	AM	33							
1326	AM	34							
1327	AM	35							
1328	AM	36							
1329	AM	37							
1330	AM	38							
1331	AM	39							
1332	AM	40							
1333	AM	41							
1334	AM	42							
1335	AM	43							
1336	AM	44							
1337	AM	45							
1338	AM	46							
1339	AM	47							
1340	AM	48							
1341	AM	49							
1342	AM	50							
1343	AM	51							
1344	AM	52							
1345	AM	53							
1346	AM	54							
1347	AM	55							

RN050
EXECUTE MOVE CHAR TO A OR B WO MRK
STOP WITH B FLO WORD MARK
CHECK CONTENTS OF A & B ADDR
REGS AT COMPLETION OF OPERATION

*E005
0004
MAFIRS,MAFLDI
BFLRES,MAFLDI
STK
MAFLDI
STK,CKMVA
NXC40
TDC40
MAFLDI,CKMVA
LOOPCK
TYPI

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MOVE TO B WO MRK
STORE A ADDR
STORE B ADDR
CK A ADDR REG
CK FOR EQUAL
ERROR
CK B ADDR REG
CK FOR EQUAL
ERR CK FOR TYPE
CONTENTS OF A&B
REG AFTER MV OP
ARE INCORRECT

RN051
EXECUTE LOAD CHAR TO A WORD MARK
CHECK CONTENTS OF A & B ADDR
REGS AFTER OPERATION

*E005
0004
LBRES,LBFLD
LBRES-002,LBFLD-002
LAFLD,LBFLD
STK
MAFLDI
STK,CKLDA
NXC41
TDC41
MAFLDI,CKLDA
LOOPCK
TYPI

SET ROUT. START
ADDR IN LOC 2-4
RESTORE
B FIELDS
EXEC LOAD
STORE A ADDR
STORE B ADDR
CK A ADDR REG
CK FOR EQUAL
ERROR
CK B ADDR REG
CK FOR EQUAL
ERR CK FOR TYPE
CONTENTS OF A&B

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SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

1348 AM 56
1349 AM 57
1350 AM 58
1351 AM 59
1352 AM 60
1353 AM 61
1354 AM 62
1355 AM 63
1356 AM 64
1357 AM 65
1358 AM 66
1359 AM 67
1360 AM 68
1361 AM 69
1362 AM 70
1363 AM 71
1364 AM 72
1365 AM 73
1366 AM 74
1367 AM 75
1368 AM 76
1369 AM 77
1370 AM 78
1371 AM 79
1372 AM 80
1373 AM 81
1374 AM 82
1375 AM 83
1376 AM 84
1377 AM 85
1378 AM 86
1379 AM 87
1380 AM 88
1381 AM 89
1382 AM 90
1383 AM 91
1384 AM 92
1385 AM 93
1386 AM 94
1387 AM 95
1388 AM 96
1389 AM 97
1390 AM 98
1391 AM 99
1392 AM 00
1393 AM 01
1394 AM 02
1395 AM 03
1396 AM 04
1397 AM 05

REGS AFTER LD OP
ARE INCORRECTR052
EXECUTE STORE A ADDRESS OP
USING BR IF CHAR EQ INSTR

NOP
SAR
LCA
LCA
BCE
SAR
SAR
C
BE
B
C
BE
B
NXC42A BCE
TDC42 B

•E005
0004
STARES+STACK
STARES-002,STACK-002
SETA-M5,N
STACK
CKSTA+STACK
NXC42
TDC42
STACK-002,CKSTA-002
NXC42A
TDC42
LOOPCK,STACK-003,
TYP1

SET ROUT. START
ADDR IN LOC 2-4
RESTORE
FIELD
BR IF CHAR EQ
STORE A ADDRESS
STORE A ADDRESS
CK RESULT
CK FOR EQUAL
ERROR
CK HI ORD DIGIT
CK FOR EQUAL
ERROR
CK FOR BLANK
ERR CK FOR TYPE
RESULT
OF STA IS INCOR
OR BR FAILED

4 4205 N 21T
4 4209 Q 004 X79
7 4213 L X83 X79
7 4220 L X81 X77
8 4227 B 232 W03 N
4 4235 Q X79
4 4239 Q X79
7 4243 C X86 X79
5 4250 B 252 S
4 4255 B 28T
7 4259 C X77 X84
5 4266 B 27V S
4 4271 B 28T
8 4275 B 162 X76
4 4283 B S89

R053
EXECUTE STORE B ADDRESS OP
USING BRANCH INSTRUCTION

NOP
SAR
LCA
LCA
B
B
SBR
C
BE
B
C
BE
NXC43A BCE
TDC43 B

•E005
0004
STARES+STACK
STARES-002,STACK-002
SETB
TDC43
STACK
CKSTB+STACK
NXC43
TDC43
STACK-002,CKSTB-002
NXC43A
TDC43
LOOPCK,STACK-003,
TYP1

SET ROUT. START
ADDR IN LOC 2-4
RESTORE
FIELD
BRANCH
ERR DID NOT BR
STORE B ADDRESS
CK RESULT
CK FOR EQUAL
ERROR
CK HI ORD DIG
CK FOR EQUAL
ERROR
CK FOR BLANK
ERR CK FOR TYPE
RESULT
OF STB IS INCOR.
OR BR FAILED

4 4287 N 29V
4 4291 Q 004 X79
7 4295 L X83 X79
7 4302 L X81 X77
4 4309 B 31X
4 4313 B 36/
4 4317 H X79
7 4321 C X89 X79
5 4328 B 33X S
4 4333 B 36/
7 4337 C X77 X87
5 4344 B 35T S
4 4349 B 36/
8 4353 B 162 X76
4 4361 B S89

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SFX CT LOCN INSTRUCTION

OPERANDS

LCA OP

SEQ PG LIN LABEL

1448	AN 56	LCA	CHNASR,CHNAS	RESTORE	7	4479	L X97 X93
1449	AN 57	LCA	CHNASR-001,CHNAS-001	WORK	7	4486	L X96 X92
1450	AN 58	LCA	CHNASR-002,CHNAS-002	ARER	7	4493	L X95 X91
1451	AN 59	LCA	CHNASR-003,CHNAS-003	TO 1234	7	4500	L X94 X90
1452	AN 60	A	AFCHN,CHNAS	ADD	7	4507	A Y01 X93
1453	AN 61	A		ADD	1	4514	A
1454	AN 62	S		SUB	1	4515	S
1455	AN 63	A		ADD	1	4516	A
1456	AN 64	8CE	NXC47,CHNAS,7	CK FOR 7	8	4517	8 522 X93 7
1457	AN 65	8	TDCK47	ERROR	4	4525	8 56/
1458	AN 66	NXC47 BCE	NXC47A,CHNAS-001,8	CK FOR 8	8	4529	8 54/ X92 8
1459	AN 67	B	TDCK47	ERROR	4	4537	8 56/
1460	AN 68	8CE	NXC47B,CHNAS-002,6	CK FOR 80	8	4541	8 55/ X91 8
1461	AN 69	8	TDCK47	ERROR	4	4549	8 56/
1462	AN 70	NXC47B BCE	LOOPCK,CHNAS-003,2	CK FOR 2	8	4553	8 162 X90 2
1463	AN 71	B	TYPI	ERR CK FOR TYPE	4	4561	8 589
1464	AN 72	TDCK47 B		RESULT OF CHAIN			
1465	AN 73			ADD & SUB IS			
1466	AN 74			INCORRECT			

RN058
EXECUTE CHAIN OF MOVE & LOAD INSTRS

1471	AN 79	NOP	*C005	SET ROUT. START	4	4565	N 57T
1472	AN 80	SAR	0004	ADDR IN LOC 2-4	4	4569	Q 004
1473	AN 81	LCA	LMCHNR,LMCHN	RESTORE	7	4573	L Y17 Y09
1474	AN 82	LCA	LMCHNR-002,LMCHN-002	8	7	4580	L Y15 Y07
1475	AN 83	LCA	LMCHNR-003,LMCHN-003	FIELD	7	4587	L Y14 Y06
1476	AN 84	LCA	LMCHNR-006,LMCHN-006	AREA	7	4594	L Y11 Y03
1477	AN 85	LCA	LMCHNR-006,LMCHN-006	EXECUTE	7	4601	M Y25 Y09
1478	AN 86	MCH	LMFLD,LMCHN	LOAD	1	4608	M
1479	AN 87	MCH		MOVE	1	4609	L
1480	AN 88	LCA		CHAIN	1	4610	M
1481	AN 89	MCH		CK RESULT	7	4611	C Y25 Y09
1482	AN 90	C	LMFLD,LMCHN	CK FOR EQUAL	5	4618	B 62X S
1483	AN 91	8E	NXC48	ERROR	4	4623	B 67Z
1484	AN 92	8	TDCK48	CK FOR C	8	4627	B 63Z Y07 C
1485	AN 93	NXC48 BCE	NXC48A,LMCHN-002,C	ERROR	4	4635	B 67Z
1486	AN 94	8	TDCK48	CK RESULT	7	4639	C Y22 Y06
1487	AN 95	C	LMFLD-003,LMCHN-003	CK FOR EQUAL	5	4646	8 65V S
1488	AN 96	8E	NXC48B	ERROR	4	4651	B 67Z
1489	AN 97	B	TDCK48	CK RESULT	7	4655	C Y19 Y03
1490	AN 98	C	LMFLD-006,LMCHN-006	CK FOR EQUAL	5	4662	B 67/ S
1491	AN 99	8E	NXC48C	ERROR	4	4667	B 67Z
1492	AD 00	8	TDCK48	CK FOR WM	8	4671	V 162 Y07 1
1493	AD 01	8WZ	LOOPCK,LMCHN-002,1	ERR CK FOR TYPE	4	4679	B 589
1494	AD 02	TDCK48 B	TYPI	RESULT			
1495	AD 03			OF CHAIN SHOULD			
1496	AD 04			BE AA88BCDD			
1497	AD 05						

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SFX CT LDCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

1498 AD 06
1499 AD 07
1500 AD 08
1501 AD 09
1502 AD 10
1503 AD 11
1504 AD 12
1505 AD 13
1506 AD 14
1507 AD 15
1508 AD 16
1509 AD 17
1510 AD 18
1511 AD 19
1512 AD 20
1513 AD 21
1514 AD 22
1515 AD 23
1516 AD 24
1517 AD 25
1518 AD 26
1519 AD 27
1520 AD 28
1521 AD 29
1522 AD 30
1523 AD 31
1524 AD 32
1525 AD 33
1526 AD 34
1527 AD 35
1528 AD 36
1529 AD 37
1530 AD 38
1531 AD 39
1532 AD 40
1533 AD 41
1534 AD 42
1535 AD 43
1536 AD 44
1537 AD 45
1538 AD 46
1539 AD 47
1540 AD 48
1541 AD 49
1542 AD 50
1543 AD 51
1544 AD 52
1545 AD 53
1546 AD 54
1547 AD 55

RN059
EXECUTE MODIFY ADDRESS DP
ADD 111 TO 000

*6005
0004
ZER4,MABFLD
ONE4,MABFLD
MABFLD,MANI
LODPCK
TYP1

NOP
SAR
MCH
MA
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
EXEC. MOD ADD
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
DF MA SHOULD BE
0111

4 4683 N 69/
4 4687 Q 004
7 4691 M Y33 Y29
7 4698 # Y37 Y29
7 4705 C Y29 Y41
5 4712 B T62 S
4 4717 B S89

RN060
EXECUTE MODIFY ADDRESS DP
SINGLE ADDRESS
ADD 111 TO 111

*6005
0004
ONE4,MABFLD
MABFLD
MABFLD,ZRIMO
LODPCK
TYP1

NOP
SAR
MCH
MA
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
EXEC MOD ADD
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
DF MA SHOULD BE
1222

4 4721 N 722
4 4725 Q 004
7 4729 M Y37 Y29
4 4736 # Y29
7 4740 C Y29 Y45
5 4747 B T62 S
4 4752 B S89

RN061
EXECUTE MODIFY ADDRESS
MODIFY 123 BY USW
CK FOR V7Z RESULT

*6005
0004
RESB1,888
AADI,888
BBB,MANN
NXT5I
TYP1

NOP
SAR
LCA
MA
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MA SHOULD BE
V7Z

4 4756 N 76U
4 4760 Q 004
7 4764 L Y49 D6W
7 4771 # Y85 D6W
7 4778 C D6W B4Z
5 4785 B 79U S
4 4790 B S89

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SEQ PG LIN	LABEL	OP	DRRANDS	SFX	CT	LDCN	INSTRUCTION
1548 A0 56	NXT51	LCA	AAD1,888				
1549 A0 57		MA	RESB1,888				
1550 A0 58		C	888,MANN				
1551 A0 59		8E	LDDPCK				
1552 A0 60		B	TYP1				
1553 A0 61							SET B FIELD
1554 A0 62							MODIFY ADDRESS
1555 A0 63							CK RESULT
1556 A0 64							CK FOR EQUAL
1557 A0 65							ERR CK FOR TYPE
1558 A0 66							RESULT
1559 A0 67							SHOULD BE V7Z
1560 A0 68							
1561 A0 69							
1562 A0 70							
1563 A0 71							
1564 A0 72							
1565 A0 73							
1566 A0 74							
1567 A0 75							
1568 A0 76							
1569 A0 77							
1570 A0 78							
1571 A0 79							
1572 A0 80							
1573 A0 81							
1574 A0 82							
1575 A0 83							
1576 A0 84							
1577 A0 85							
1578 A0 86							
1579 A0 87							
1580 A0 88							
1581 A0 89							
1582 A0 90							
1583 A0 91							
1584 A0 92							
1585 A0 93							
1586 A0 94							
1587 A0 95							
1588 A0 96							
1589 A0 97							
1590 A0 98							
1591 A0 99							
1592 A0 00							
1593 A0 01							
1594 A0 02							
1595 A0 03							
1596 A0 04							
1597 A0 05							
RN062							
EXECUTE MODIFY ADDRESS							
MODIFY OC2 BY 402							
CK FDR 6G4 RESULT							
1562 A0 70	NXT51	LCA	AAD1,888				
1563 A0 71		MA	RESB1,888				
1564 A0 72		C	888,MANN				
1565 A0 73		8E	LDDPCK				
1566 A0 74		B	TYP1				
1567 A0 75							
1568 A0 76							
1569 A0 77							
1570 A0 78							
1571 A0 79							
1572 A0 80							
1573 A0 81							
1574 A0 82							
1575 A0 83							
1576 A0 84							
1577 A0 85							
1578 A0 86							
1579 A0 87							
1580 A0 88							
1581 A0 89							
1582 A0 90							
1583 A0 91							
1584 A0 92							
1585 A0 93							
1586 A0 94							
1587 A0 95							
1588 A0 96							
1589 A0 97							
1590 A0 98							
1591 A0 99							
1592 A0 00							
1593 A0 01							
1594 A0 02							
1595 A0 03							
1596 A0 04							
1597 A0 05							
RN063							
EXECUTE MODIFY ADDRESS							
MODIFY E41 BY 369							
CK FDR 110 RESULT							
1562 A0 70	NXT51	LCA	AAD1,888				
1563 A0 71		MA	RESB1,888				
1564 A0 72		C	888,MANN				
1565 A0 73		8E	LDDPCK				
1566 A0 74		B	TYP1				
1567 A0 75							
1568 A0 76							
1569 A0 77							
1570 A0 78							
1571 A0 79							
1572 A0 80							
1573 A0 81							
1574 A0 82							
1575 A0 83							
1576 A0 84							
1577 A0 85							
1578 A0 86							
1579 A0 87							
1580 A0 88							
1581 A0 89							
1582 A0 90							
1583 A0 91							
1584 A0 92							
1585 A0 93							
1586 A0 94							
1587 A0 95							
1588 A0 96							
1589 A0 97							
1590 A0 98							
1591 A0 99							
1592 A0 00							
1593 A0 01							
1594 A0 02							
1595 A0 03							
1596 A0 04							
1597 A0 05							
RN064							
EXECUTE MODIFY ADDRESS							
MODIFY E41 BY 369							
CK FDR 110 RESULT							
1562 A0 70	NXT51	LCA	AAD1,888				
1563 A0 71		MA	RESB1,888				
1564 A0 72		C	888,MANN				
1565 A0 73		8E	LDDPCK				
1566 A0 74		B	TYP1				
1567 A0 75							
1568 A0 76							
1569 A0 77							
1570 A0 78							
1571 A0 79							
1572 A0 80							
1573 A0 81							
1574 A0 82							
1575 A0 83							
1576 A0 84							
1577 A0 85							
1578 A0 86							
1579 A0 87							
1580 A0 88							
1581 A0 89							
1582 A0 90							
1583 A0 91							
1584 A0 92							
1585 A0 93							
1586 A0 94							
1587 A0 95							
1588 A0 96							
1589 A0 97							
1590 A0 98							
1591 A0 99							
1592 A0 00							
1593 A0 01							
1594 A0 02							
1595 A0 03							
1596 A0 04							
1597 A0 05							

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1598	AP	06		C	888,MANNC008				
1599	AP	07		BE	LOOPCK				CK RESULT
1600	AP	08		B	TYPI				CK FOR EQUAL
1601	AP	09						4944	C D6W B5X
1602	AP	10						4951	8 T62 S
1603	AP	11						4956	B S89
1604	AP	12							
1605	AP	13							
1606	AP	14							
1607	AP	15							
1608	AP	16							
1609	AP	17							
1610	AP	18		NOP	*E005			4960	N 96Y
1611	AP	19		SAR	0004			4964	Q 004
1612	AP	20		LCA	RESB1E012,888			4968	L Y61 06W
1613	AP	21		MA	AAD1E012,888			4975	# Y97 06W
1614	AP	22		C	888,MANNE012			4982	C 06W B67
1615	AP	23		BE	NXT54			4989	B 99Y S
1616	AP	24		B	TYPI			4994	B S89
1617	AP	25							
1618	AP	26							
1619	AP	27							
1620	AP	28		LCA	AA01E012,888			4998	L Y97 D6W
1621	AP	29		MA	RESB1E012,888			5005	# Y61 D6W
1622	AP	30		C	888,MANNE012			5012	C 06W B67
1623	AP	31		BE	LOOPCK			5019	B T62 S
1624	AP	32		B	TYPI			5024	B S89
1625	AP	33							
1626	AP	34							
1627	AP	35							
1628	AP	36							
1629	AP	37							
1630	AP	38							
1631	AP	39							
1632	AP	40							
1633	AP	41		NOP	*E005			5028	N #3W
1634	AP	42		SAR	0004			5032	Q 004
1635	AP	43		LCA	RESB1E016,888			5036	L Y65 06W
1636	AP	44		MA	AAD1E016,888			5043	# Z01 D6W
1637	AP	45		C	888,MANNE016			5050	C 06W B6V
1638	AP	46		BE	NXT55			5057	B #6W S
1639	AP	47		B	TYPI			5062	B S89
1640	AP	48							
1641	AP	49							
1642	AP	50							
1643	AP	51		LCA	AA01E016,888			5066	L Z01 D6W
1644	AP	52		MA	RESB1E016,888			5073	# Y65 D6W
1645	AP	53		C	888,MANNE016			5080	C 06W B6V
1646	AP	54		BE	LOOPCK			5087	B T62 S
1647	AP	55							

RN064
EXECUTE MODIFY ADDRESS
MODIFY YMT BY ZN2
CK FOR GRV RESULT

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MA SHOULD BE
GRV
SET B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
SHOULD BE GRV

RN065
EXECUTE MODIFY ADDRESS
MODIFY UX BY M23
CK FOR H4* RESULT

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MA SHOULD BE
H4*

SET B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL

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SEQ PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1648	AP 56		B		ERR	CK	FOR TYPE	4 5092 B SB9
1649	AP 57				RESULT			
1650	AP 58				SHOULD BE	H4*		
1651	AP 59							
1652	AP 60							
1653	AP 61							
1654	AP 62							
1655	AP 63							
1656	AP 64							
1657	AP 65							
1658	AP 66							
1659	AP 67							
1660	AP 68							
1661	AP 69							
1662	AP 70							
1663	AP 71							
1664	AP 72							
1665	AP 73							
1666	AP 74							
1667	AP 75							
1668	AP 76							
1669	AP 77							
1670	AP 78							
1671	AP 79							
1672	AP 80							
1673	AP 81							
1674	AP 82							
1675	AP 83							
1676	AP 84							
1677	AP 85							
1678	AP 86							
1679	AP 87							
1680	AP 88							
1681	AP 89							
1682	AP 90							
1683	AP 91							
1684	AP 92							
1685	AP 93							
1686	AP 94							
1687	AP 95							
1688	AP 96							
1689	AP 97							
1690	AP 98							
1691	AP 99							
1692	AQ 00							
1693	AQ 01							
1694	AQ 02							
1695	AQ 03							
1696	AQ 04							
1697	AQ 05							

RN066
EXECUTE MODIFY ADDRESS
MODIFY S3U BY F45
CK FOR BTR RESULT

•2005
NOP
SAR
LCA
MA
C
BE
B
TYP1

RESB16020,888
AAD16020,888
BBB,MANNE020
NXT56

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MA SHOULD BE
BTR

4 5096 N /OU
4 5100 Q 004
7 5104 L Y69 D6W
7 5111 # Z05 D6W
7 5118 C D6W B6Z
5 5125 B /3U S
4 5130 B SB9

NXT56
LCA
MA
C
BE
B
TYP1

AAD16020,888
RESB16020,888
BBB,MANNE020
LOOPCK

SET B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
SHOULD BE 87R

7 5134 L Z05 D6W
7 5141 # Y69 D6W
7 5148 C D6W B6Z
5 5155 B T62 S
4 5160 B SB9

RN067
EXECUTE MODIFY ADDRESS
MODIFY KW3 BY LV2
CK FOR 6/V RESULT

•2005
NOP
SAR
LCA
MA
C
BE
B
TYP1

RESB16024,888
AAD16024,888
BBB,MANNE024
NXT57

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
OF MA SHOULD BE
6/V

4 5164 N /7S
4 5168 Q 004
7 5172 L Y73 D6W
7 5179 # Z09 D6W
7 5186 C D6W B7T
5 5193 B S05 S
4 5198 B SB9

NXT57
LCA
MA
C
BE
B
TYP1

AAD16024,888
RESB16024,888
BBB,MANNE024
LOOPCK

SET B FIELD
MODIFY ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT

7 5202 L Z09 D6W
7 5209 # Y73 D6W
7 5216 C D6W B7T
5 5223 B T62 S
4 5228 B SB9

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP DPERANDS

1698 AQ 06
 1699 AQ 07
 1700 AQ 08
 1701 AQ 09
 1702 AQ 10
 1703 AQ 11
 1704 AQ 12
 1705 AQ 13
 1706 AQ 14
 1707 AQ 15
 1708 AQ 16
 1709 AQ 17
 1710 AQ 18
 1711 AQ 19
 1712 AQ 20
 1713 AQ 21
 1714 AQ 22
 1715 AQ 23
 1716 AQ 24
 1717 AQ 25
 1718 AQ 26
 1719 AQ 27
 1720 AQ 28
 1721 AQ 29
 1722 AQ 30
 1723 AQ 31
 1724 AQ 32
 1725 AQ 33
 1726 AQ 34
 1727 AQ 35
 1728 AQ 36
 1729 AQ 37
 1730 AQ 38
 1731 AQ 39
 1732 AQ 40
 1733 AQ 41
 1734 AQ 42
 1735 AQ 43
 1736 AQ 44
 1737 AQ 45
 1738 AQ 46
 1739 AQ 47
 1740 AQ 48
 1741 AQ 49
 1742 AQ 50
 1743 AQ 51
 1744 AQ 52
 1745 AQ 53
 1746 AQ 54
 1747 AQ 55

RN068
 EXECUTE MDDIFY ADDRESS
 MDDIFY J46 BY H57
 CK FDR -OT RESULT

NDP
 SAR
 LCA
 MA
 C
 BE
 B

*E005
 0004
 RES81E028,888
 AAD1E028,888
 888,MANNE028
 NXT58
 TYPI

SET ROUT. START
 ADDR IN LOC 2-4
 RESTORE B FIELD
 MDDIFY ADDRESS
 CK RESULT
 CK FDR EQUAL
 ERR CK FDR TYPE
 RESULT
 DF MA SHOULD BE
 -OT

4 5232 N S4+
 4 5236 Q 004
 7 5240 L Y77 D6W
 7 5247 # Z13 D6W
 7 5254 C D6W B7X
 5 5261 B S7# S
 4 5266 B S89

NXT58

LCA
 MA
 C
 BE
 B

AAD1E028,888
 RES81E028,888
 888,MANNE028
 LODPCK
 TYPI

7 5270 L Z13 D6W
 7 5277 # Y77 D6W
 7 5284 C D6W B7X
 5 5291 B T62 S
 4 5296 B S89

SET B FIELD
 MDDIFY ADDRESS
 CK RESULT
 CK FDR EQUAL
 ERR CK FDR TYPE
 RESULT
 SHOULD BE -OT

RN069
 EXECUTE MDDIFY ADDRESS
 MDDIFY A23 BY D56
 CK FDR N7Z RESULT

NDP
 SAR
 LCA
 MA
 C
 BE
 B

*E005
 0004
 RES81E032,888
 AAD1E032,888
 888,MANNE032
 NXT59
 TYPI

SET ROUT. START
 ADDR IN LOC 2-4
 RESTORE B FIELD
 MDDIFY ADDRESS
 CK RESULT
 CK FDR EQUAL
 ERR CK FDR TYPE
 RESULT
 DF MA SHOULD BE
 N7Z

4 5300 N T0Y
 4 5304 Q 004
 7 5308 L Y81 D6W
 7 5315 # Z17 D6W
 7 5322 C D6W B8/
 5 5329 B T3Y S
 4 5334 B S89

NXT59

LCA
 MA
 C
 BE
 B

AAD1E032,888
 RES81E032,888
 888,MANNE032
 LOOPCK
 TYPI

SET B FIELD
 MDDIFY ADDRESS
 CK RESULT
 CK FDR LODP
 ERR CK FDR TYPE
 RESULT
 SHOULD BE N7Z

7 5338 L Z17 D6W
 7 5345 # Y81 D6W
 7 5352 C D6W B8/
 5 5359 B T62 S
 4 5364 B S89

SEQ PG LIN LABEL OP OPERANDS

```

1748 AQ 56
1749 AQ 57
1750 AQ 58
1751 AQ 59
1752 AQ 60
1753 AQ 61
1754 AQ 62
1755 AQ 63
1756 AQ 64
1757 AQ 65
1758 AQ 66
1759 AQ 67
1760 AQ 68
1761 AQ 69
1762 AQ 70
1763 AQ 71
1764 AQ 72
1765 AQ 73
1766 AQ 74
1767 AQ 75
1768 AQ 76
1769 AQ 77
1770 AQ 78
1771 AQ 79
1772 AQ 80
1773 AQ 81
1774 AQ 82
1775 AQ 83
1776 AQ 84
1777 AQ 85
1778 AQ 86
1779 AQ 87
1780 AQ 88
1781 AQ 89
1782 AQ 90
1783 AQ 91
1784 AQ 92
1785 AQ 93
1786 AQ 94
1787 AQ 95
1788 AQ 96
1789 AQ 97
1790 AQ 98
1791 AQ 99
1792 AR 00
1793 AR 01
1794 AR 02
1795 AR 03
1796 AR 04
1797 AR 05

TEST SYSTEM CONTROL MEMORY SIZE
LOC. 81257B FOR A 0 INDICATING
10K MEMORY IF NOT 0 GREATER THAN
10K MEM IS ASSUMED AND PROG
BRANCHES TO LOC. 8120 TO EXECUTE
ROUTINES RN070--RN074

RN75, MEMSIZ, 0
8120

BCE
B

CK FOR 10K MEM
GREATER THAN
10K MEM GO TO
8120 TO EXEC
ROUTS. 70-74

RN075
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 999

*E005
0004
1000, TS1401
CK1401
CK1401, COMPCCK
LOOPCK
TYP1

NOP
SAR
MCH
SAR
C
BE
B

RN75
SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
999

RN076
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 299

*E005
0004
2000, TS1401
CK1401
CK1401, COMPCCKE003
LOOPCK
TYP1

NOP
SAR
MCH
SAR
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
299

RN077

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1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
------------	-------	----	----------	-----	----	------	-------------

1798	AR 06						
1799	AR 07						
1800	AR 08						
1801	AR 09						
1802	AR 10						
1803	AR 11	NOP	*E005				
1804	AR 12	SAR	0004	4	5450	N U5Y	
1805	AR 13	MCW	3000,TS1401	4	5454	Q 004	
1806	AR 14	SAR	CK1401	7	5458	M E00 D6X	
1807	AR 15	C	CK1401,COMPCKE006	4	5465	Q D7#	
1808	AR 16	BE	LOOPCK	7	5469	C D7# D2M	
1809	AR 17	B	TYPI	5	5476	B T62 S	
1810	AR 18			4	5481	B S89	
1811	AR 19						
1812	AR 20						
1813	AR 21						
1814	AR 22						
1815	AR 23						
1816	AR 24						
1817	AR 25						
1818	AR 26						
1819	AR 27						
1820	AR 28						
1821	AR 29						
1822	AR 30						
1823	AR 31						
1824	AR 32						
1825	AR 33						
1826	AR 34						
1827	AR 35						
1828	AR 36						
1829	AR 37						
1830	AR 38						
1831	AR 39						
1832	AR 40						
1833	AR 41						
1834	AR 42						
1835	AR 43						
1836	AR 44						
1837	AR 45						
1838	AR 46						
1839	AR 47						
1840	AR 48						
1841	AR 49						
1842	AR 50						
1843	AR 51						
1844	AR 52						
1845	AR 53						
1846	AR 54						
1847	AR 55						

EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO R99

SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
R99

RN078
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 199

SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
199

RN079
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 99Z

SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED ADDR
SHOULD BE 99Z

RN080

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO Z9Z

NOP	*E005	SET ROUT. START	4	5555	N V6T
SAR	0004	ADDR IN LOC 2-4	4	5559	Q 004
MCW	6000,TS1401	EXECUTE MOVE	7	5563	M -0# D6X
SAR	CK1401	STORE A ADDRESS	4	5570	Q D7# D3V
C	CK1401,COMPCK&015	CK ADDRESS	7	5574	C D7# D3V
BE	LOOPCK	CK FOR EQUAL	5	5581	B T62 S
B	TYPI	ERR CK FOR TYPE	4	5586	B S89
		STORED			
		ADD SHOULD BE			
		Z9Z			

RN081
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO R9Z

NOP	*E005	SET ROUT. START	4	5590	N V9V
SAR	0004	ADDR IN LOC 2-4	4	5594	Q 004
MCW	7000,TS1401	EXECUTE MOVE	7	5598	M 60# D6X
SAR	CK1401	STORE A ADDRESS	4	5605	Q D7# D3Y
C	CK1401,COMPCK&018	CK ADDRESS	7	5609	C D7# D3Y
BE	LOOPCK	CK FOR EQUAL	5	5616	B T62 S
B	TYPI	ERR CK FOR TYPE	4	5621	B S89
		STORED			
		ADD SHOULD BE			
		R9Z			

TEST SYSTEM CONTROL MEMORY SIZE
LOC. 81257# FOR A 0 INDICATING
10K MEMORY IF NOT 0 GREATER THAN
10K MEM IS ASSUMED AND PROG
BRANCHES TO LOC 8500 TO EXECUTE
ROUTINES RN082-RN089

BCE	RN90,MENSIZ,0	CK FOR 10K MEM	8	5625	B W3X S57 0
B	8500	GREATER THAN	4	5633	B 50-
		10K MEM GO TO			
		8500 TO EXEC			
		ROUTS. 82-89			

RN090
TEST INDEX 13
EXECUTE MOVE INST WITH A ADDRESS

1848 AR 56
1849 AR 57
1850 AR 58
1851 AR 59
1852 AR 60
1853 AR 61
1854 AR 62
1855 AR 63
1856 AR 64
1857 AR 65
1858 AR 66
1859 AR 67
1860 AR 68
1861 AR 69
1862 AR 70
1863 AR 71
1864 AR 72
1865 AR 73
1866 AR 74
1867 AR 75
1868 AR 76
1869 AR 77
1870 AR 78
1871 AR 79
1872 AR 80
1873 AR 81
1874 AR 82
1875 AR 83
1876 AR 84
1877 AR 85
1878 AR 86
1879 AR 87
1880 AR 88
1881 AR 89
1882 AR 90
1883 AR 91
1884 AR 92
1885 AR 93
1886 AR 94
1887 AR 95
1888 AR 96
1889 AR 97
1890 AR 98
1891 AR 99
1892 AS 00
1893 AS 01
1894 AS 02
1895 AS 03
1896 AS 04
1897 AS 05

SFX CT LDCN INSTRUCTION

OPERANDS

LA8EL OP

ADD. SHOULD BE
A10

RN093
TEST INOEX 14
EXECUTE MOVE INST WITH A ADDRESS
OF 1000 INOEXED BY CONTENTS OF
IXR 14 CONTAINING 222

NOP	*E005	SET RDUT. START	4	5763	M	X77
SSR	0004	ADDR IN LDC 2-4	4	5767	Q	004
LCA	X25ETA,0094	SET IX 14 TO 222	7	5771	L	A4/ 094
MCM	1000&X2,TS1401	EXEC INXO MOVE	7	5778	M	#-0 D6X
SSR	CK1401	STORE A ADDRESS	4	5785	Q	D7#
C	CK1401,XAN4	CK RESULT	7	5789	C	D7# A6Y
BE	LDDPCK	CK FDR EQUAL	5	5796	B	I62 S
B	TYPI	ERR CK FDR TYPE	4	5801	B	S89
		STORED				
		ADD. SHOULD BE				
		S21				

RN094
TEST INDEX 14
EXECUTE CL WO MRK INST WITH B ADDRESS
OF 2000 INDEXED BY CONTENTS OF
IXR 14 CONTAINING 2K3

NOP	*E005	SET ROUT. START	4	5805	N YIT
SAR	0004	ADDR IN LDC 2-4	4	5809	Q 004
LCA	X2SETB,0094	SET IX 14 TO 2K3	7	5813	L A4U 094
	O250,200EX2	EXEC INXD CW	7	5820	B 250 --0
SBR	CK1401	STORE B ADDRESS	4	5827	H D7#
C	CK1401,XAN5	CK RESULT	7	5831	C D7# A7/
BE	LOOPCK	CK FOR EQUAL	5	5838	B I62 S
B	TYPI	ERR CK FDR TYPE	4	5843	B S89
		STORED			
		ADD SHOULD BE			
		KZ2			

RN095
TEST INDEX 14
EXECUTE MOVE INST WITH A ADDRESS
OF 3000 INDEXED BY CONTENTS OF
IXR 14 CONTAINING 252

	•£005	SET ROUT. START	4 5847	N Y5V
NOP	0004	ADOR IN LOC 2-4	4 5851	Q 004
SAR				

SEQ PG LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
1998 AT 06		LCA	X2SEIC,0094				
1999 AT 07		MCW	3000EX2,TS1401				
2000 AT 08		SAR	CK1401				
2001 AT 09		C	CK1401,XAN6				
2002 AT 10		BE	LOOPCK				
2003 AT 11		B	TYPI				
2004 AT 12							SET IX 14 TO 252
2005 AT 13							EXEC INXD MOVE
2006 AT 14							STORE A ADDRESS
2007 AT 15							CK RESULT
2008 AT 16							CK FOR EQUAL
2009 AT 17							ERR CK FOR TYPE
2010 AT 18							STORED
2011 AT 19							ADD. SHOULD BE
2012 AT 20							B21
2013 AT 21							
2014 AT 22							
2015 AT 23							
2016 AT 24							
2017 AT 25							
2018 AT 26							
2019 AT 27							
2020 AT 28							
2021 AT 29							
2022 AT 30							
2023 AT 31							
2024 AT 32							
2025 AT 33							
2026 AT 34							
2027 AT 35							
2028 AT 36							
2029 AT 37							
2030 AT 38							
2031 AT 39							
2032 AT 40							
2033 AT 41							
2034 AT 42							
2035 AT 43							
2036 AT 44							
2037 AT 45							
2038 AT 46							
2039 AT 47							
2040 AT 48							
2041 AT 49							
2042 AT 50							
2043 AT 51							
2044 AT 52							
2045 AT 53							
2046 AT 54							
2047 AT 55							

RN096

TEST INDEX 15
EXECUTE MOVE INST WITH A ADDRESS
OF 1000 INDEXED BY CONTENTS OF
IXR 15 CONTAINING 333

NOP
SAR
LCA
MCW
SAR
C
BE
B

*E005
0004
X3SETA,0099
1000EX3,TS1401
CK1401
CK1401,XAN7
LOOPCK
TYPI

SET ROUT. START
ADDR IN LOC 2-4
SET IX 15 TO 333
EXEC INXD MOVE
STORE A ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD. SHOULD BE
T32

ERN097

TEST INDEX 15
EXECUTE CL WD MRK INST WITH B ADDRESS
OF 2000 INDEXED BY THE CONTENTS OF
IXR 15 CONTAINING 3L3

NOP
SAR
LCA
CW
SBR
C
BE
B

*E005
0004
X3SETB,0099
0250,2000EX3
CK1401
CK1401,XAN8
LOOPCK
TYPI

SET ROUT. START
ADDR IN LOC 2-4
SET IX 15 TO 3L3
EXEC INXD CW
STORE B ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD. SHOULD BE
L32

RN098

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

2048 AT 56
2049 AT 57
2050 AT 58
2051 AT 59
2052 AT 60
2053 AT 61
2054 AT 62
2055 AT 63
2056 AT 64
2057 AT 65
2058 AT 66
2059 AT 67
2060 AT 68
2061 AT 69
2062 AT 70
2063 AT 71
2064 AT 72
2065 AT 73
2066 AT 74
2067 AT 75
2068 AT 76
2069 AT 77
2070 AT 78
2071 AT 79
2072 AT 80
2073 AT 81
2074 AT 82
2075 AT 83
2076 AT 84
2077 AT 85
2078 AT 86
2079 AT 87
2080 AT 88
2081 AT 89
2082 AT 90
2083 AT 91
2084 AT 92
2085 AT 93
2086 AT 94
2087 AT 95
2088 AT 96
2089 AT 97
2090 AT 98
2091 AT 99
2092 AU 00
2093 AU 01
2094 AU 02
2095 AU 03
2096 AU 04
2097 AU 05

TEST INDEX 15
EXECUTE MOVE INST WITH A ADDRESS
OF 3000 INDEXED BY CONTENTS OF
IXR 15 CONTAINING 313

*E005
0004
X3SEIC,0099
3000EX3,TS1401
CK1401
CK1401,XAN9
LDOPCK
TYP1

NOP
SAR
LCA
MCW
SAR
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
SET IX 15 TO 313
EXEC INXD MOVE
STORE A ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD. SHOULD BE
C32

4 5973 N Z8/
4 5977 Q 004
7 5981 L A5W 099
7 5988 M E60 D6X
4 5995 Q D7# A8T
7 5999 C D7# A8T
5 6006 B T62 S
4 6011 B S89

2071 AT 79
2072 AT 80
2073 AT 81
2074 AT 82
2075 AT 83
2076 AT 84
2077 AT 85
2078 AT 86
2079 AT 87
2080 AT 88
2081 AT 89
2082 AT 90
2083 AT 91
2084 AT 92
2085 AT 93
2086 AT 94
2087 AT 95
2088 AT 96
2089 AT 97
2090 AT 98
2091 AT 99
2092 AU 00
2093 AU 01
2094 AU 02
2095 AU 03
2096 AU 04
2097 AU 05

RN099
TEST IXRS 13,14 & 15 FOR DECREASE
OF A ADDRESS USING 16000S COMPLIMENT
EXECUTE 3 MOVE & STA INSTRS
CK STORED AREA FOR 013014015

*E005
0004
XA,0089
XA,0094
XA,0099
0501EX1,TS1401
XCK-006
0502EX2,TS1401
XCK-003
0503EX3,TS1401
XCK
XCK,XCKAN
LDOPCK
TYP1

NOP
SAR
LCA
LCA
LCA
MCW
SAR
MCW
SAR
MCW
SAR
C
BE
B

SET ROUT. START
ADDR IN LOC 2-4
SET IXRS
TO
EIC-15513
EXEC MOVE
STORE A ADDRESS
EXEC MOVE
STORE A ADDRESS
EXEC MOVE
STORE A ADDRESS
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT
SHD BE 013014015

4 6015 N -2I
4 6019 Q 004 089
7 6023 L Z68 094
7 6030 L Z68 099
7 6037 L Z68 099
7 6044 M 5#1 D6X
4 6051 Q Z50 D6X
7 6055 M 5-2 D6X
4 6062 Q Z53 D6X
7 6066 M 5#3 D6X
4 6073 Q Z56
7 6077 C Z56 Z65
5 6084 B T62 S
4 6089 B S89

2071 AT 79
2072 AT 80
2073 AT 81
2074 AT 82
2075 AT 83
2076 AT 84
2077 AT 85
2078 AT 86
2079 AT 87
2080 AT 88
2081 AT 89
2082 AT 90
2083 AT 91
2084 AT 92
2085 AT 93
2086 AT 94
2087 AT 95
2088 AT 96
2089 AT 97
2090 AT 98
2091 AT 99
2092 AU 00
2093 AU 01
2094 AU 02
2095 AU 03
2096 AU 04
2097 AU 05

RN100
INDEXING TEST
EXECUTE SEQUENCE OF INDEXED BRANCH
AND ADD INSTRS USING IXRS 13,14, & 15
CK CONTENTS OF IXRS AT COMPLETION OF LOOP

*E005
0004

NOP
SAR

SET ROUT. START
ADDR IN LOC 2-4

4 6093 N J0/
4 6097 Q 004

1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ PG LIN LABEL OP OPERANDS SFX CT LDCN INSTRUCTION

2098	AU 06	LCA	ZER3,0089	7	6101	L B4S 089
2099	AU 07	LCA	ZER3,0094	7	6108	L B4S 094
2100	AU 08	LCA	ZER3,0099	7	6115	L B4S 099
2101	AU 09	B	GO1EX1	4	6122	B JT*
2102	AU 10	B	TDCK89	4	6126	B K9Z
2103	AU 11	A	INTAB1EX1,0089EX2	7	6130	A ZV1 0Q9
2104	AU 12	B	GO2EX2	4	6137	B JOY
2105	AU 13	B	TDCK89	4	6141	B K9Z
2106	AU 14	A	INTAB1-012EX1,0074EX3	7	6145	A ZV9 0G4
2107	AU 15	B	GOA	4	6152	B J3X
2108	AU 16	A	INTAB1-020EX1,0063EX1	7	6156	A ZV1 0W3
2109	AU 17	NOP		1	6163	N
2110	AU 18	B	GOA	4	6164	B J3X
2111	AU 19	A	INTAB1EX2,0094EX3	7	6168	A ZP1 014
2112	AU 20	B	GO3EX3	4	6175	B K6W
2113	AU 21	B	TDCK89	4	6179	B K9Z
2114	AU 22	A	INTAB1-012EX2,0068EX1	7	6183	A ZN9 0WB
2115	AU 23	B	GOB	4	6190	B J7V
2116	AU 24	A	INTAB1-020EX2,0068EX3	7	6194	A ZN1 0FB
2117	AU 25	NOP		1	6201	N
2118	AU 26	B	GOB	4	6202	B J7V
2119	AU 27	A	INTAB1EX3,0099EX3	7	6206	A ZG1 019
2120	AU 28	B	GO4	4	6213	B K3Z
2121	AU 29	NOP		4	6217	N 000
2122	AU 30	A	INTAB1-012EX3,0073EX2	7	6221	A ZE9 0P3
2123	AU 31	B	GO4	4	6228	B K3Z
2124	AU 32	A	INTAB1-020EX3,0067EX1	7	6232	A ZE1 0W7
2125	AU 33	C	0099,LPEND	7	6239	C 099 Z80
2126	AU 34	BL	CKRES	5	6246	B K5V T
2127	AU 35	B	GOG	4	6251	B J2S
2128	AU 36	C	0089,XXAN	7	6255	C 089 ABW
2129	AU 37	BE	NXC89	5	6262	B K7/ S
2130	AU 38	B	TDCK89	4	6267	B K9Z
2131	AU 39	C	0094,XXAN	7	6271	C 094 ABW
2132	AU 40	BE	NXC89A	5	6278	B K8X S
2133	AU 41	B	TDCK89	4	6283	B K9Z
2134	AU 42	C	0099,XXAN	7	6287	C 099 ABW
2135	AU 43	BE	LOOPCK	5	6294	B T6Z S
2136	AU 44	B	TYPI	4	6299	B S89

RN101
SENSE SW OFF TEST 3SWS B-G0

SET ROUT. START
ADDR IN LOC 2-4

*E005
0004

NOP
SAR

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SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
2148 AU 56		BCE	RN101,TAD4,1	8	6311	B L2T #04 1
2149 AU 57		B	RN102	4	6319	B M5/
2150 AU 58	RN101	MCW	%TO,SWOMES-034,M	8	6323	M %TO CIX W
2151 AU 59		H		1	6331	. HALT TO SET SMS
2152 AU 60						OFF
2153 AU 61		MCW	SWRES,SWIND	7	6332	M A9S Z41
2154 AU 62		BSS	ERB,B	5	6339	B L4Y B
2155 AU 63		B	SWC	4	6344	B L5V
2156 AU 64	ERB	MCW	ONE,SWIND-005	7	6348	M U14 Z36
2157 AU 65	SWC	BSS	ERC,C	5	6355	B L6U C
2158 AU 66		B	SWD	4	6360	B L7/
2159 AU 67	ERC	MCW	ONE,SWIND-004	7	6364	M U14 Z37
2160 AU 68	SWD	BSS	ERD,D	5	6371	B L8# D
2161 AU 69		B	SWE	4	6376	B L8X
2162 AU 70	ERD	MCW	ONE,SWIND-003	7	6380	M U14 Z38
2163 AU 71	SWE	BSS	ERE,E	5	6387	B L9W E
2164 AU 72	ERE	B	SWF	4	6392	B M0T
2165 AU 73	SWF	MCW	ONE,SWIND-002	7	6396	M U14 Z39
2166 AU 74	ERE	BSS	ERF,F	5	6403	B M1S F
2167 AU 75		B	SWG	4	6408	B M1Z
2168 AU 76	ERF	MCW	ONE,SWIND-001	7	6412	M U14 Z40
2169 AU 77	SWG	BSS	ERG,G	5	6419	B M2Y G
2170 AU 78		B	CKSWF	4	6424	B M3V
2171 AU 79	ERG	MCW	ONE,SWIND	7	6428	M U14 Z41
2172 AU 80	CKSWF	C	SWIND,SWRES	7	6435	C Z41 A9S
2173 AU 81		BE	LOOPCK	5	6442	B T6Z S
2174 AU 82		B	TYPI	4	6447	B S89
2175 AU 83						ERR CK FOR TYPE
2176 AU 84						ERR-PROG BRNCD
2177 AU 85						ON SW DISPLAY
2178 AU 86						6 LOCS LABELED
2179 AU 87						SWIND FOR DISP
2180 AU 88						OF SW B-G RESP.
2181 AU 89						1 INDS ERR SW
2182 AU 90						
2183 AU 91						
2184 AU 92						
2185 AU 93						
2186 AU 94	RN102	NOP	*E005	4	6451	M M5Z
2187 AU 95		SAR	0004	4	6455	Q 004
2188 AU 96		BCE	R102,TAD4,1	8	6459	B M7/ #04 1
2189 AU 97		B	RN103	4	6467	B M7V
2190 AU 98	R102	MCW	%TO,SWNMES-033,M	8	6471	M %TO 88S W
2191 AU 99		H		1	6479	. HALT TO SET SMS
2192 AV 00						
2193 AV 01		MCW	SWRES,SWIND1	7	6480	M A9S Z47
2194 AV 02		BSS	SWTC,B	5	6487	B M9Z B
2195 AV 03		MCW	ONE,SWIND1-005	7	6492	M U14 Z42
2196 AV 04	SWTC	BSS	SWTD,C	5	6499	B N1/ C
2197 AV 05		MCW	ONE,SWIND1-004	7	6504	M U14 Z43

RN102
SENSE SW ON TEST %SMS B-G0

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

OPERANDS

LABEL OP

SEQ PG LIN

2198	AV	06	SWTD	BSS	SWTE,D	TEST SW D	5	6511	B N2T D
2199	AV	07	SWTE	MCH	ONE,SWIND1-003	SET SWD ERR IND	7	6516	M U14 Z44
2200	AV	08	SWTE	BSS	SWTF,E	TEST SW E	5	6523	B N3V E
2201	AV	09	SWTF	MCH	ONE,SWIND1-002	SET SWE ERR IND	7	6528	M U14 Z45
2202	AV	10	SWTF	BSS	SWTG,F	TEST SW F	5	6535	B N4X F
2203	AV	11	SWTG	MCH	ONE,SWIND1-001	SET SWF ERR IND	7	6540	M U14 Z46
2204	AV	12	SWTG	BSS	CKSWON,G	TEST SW G	5	6547	B N5Z G
2205	AV	13	CKSWON	MCH	ONE,SWIND1	SET SWG ERR IND	7	6552	M U14 Z47
2206	AV	14	CKSWON	C	SWIND1,SWRES	CK RESULT	7	6559	C Z47 A9S
2207	AV	15	BE	BE	LOOPCK	CK FOR EQUAL	5	6566	B T62 S
2208	AV	16	B	B	TYPI	ERR CK FOR TYPE	4	6571	B S89
2209	AV	17				ERR PROG DID			
2210	AV	18				NOT BR ON SW			
2211	AV	19				DISPLAY 6 LOCS			
2212	AV	20				LABELED SWIND1			
2213	AV	21				FOR DISP. OF SW			
2214	AV	22				B-G RESP. 1 INDS			
2215	AV	23				ERR SW			
2216	AV	24							
2217	AV	25							
2218	AV	26							
2219	AV	27							
2220	AV	28							
2221	AV	29							
2222	AV	30							
2223	AV	31							
2224	AV	32							
2225	AV	33							
2226	AV	34							
2227	AV	35							
2228	AV	36							
2229	AV	37							
2230	AV	38							
2231	AV	39							
2232	AV	40							
2233	AV	41							
2234	AV	42							
2235	AV	43							
2236	AV	44							
2237	AV	45							
2238	AV	46							
2239	AV	47							
2240	AV	48							
2241	AV	49							
2242	AV	50							
2243	AV	51							
2244	AV	52							
2245	AV	53							
2246	AV	54							
2247	AV	55							

RN103									
TEST MOVE CHAR AND EDIT									
CONTROL WD CRG , \$0.									
A FIELD 0000034N									
CK FOR CR \$3.45 USA									
CK FOR CR ,003.45 EUROPEAN									
SET ROUT. START									
ADDR IN LOC 2-4									
LOAD CONTROL WD									
MOVE AND EDIT									
TEST FOR EUROPE									
CK RESULT									
CK INDICATOR									
CK RESULT									
CK FOR EQUAL									
ERR CK FOR TYPE									
RESULT									
OF EDIT SHOULD									
BE CR \$3.45									
OR CR ,003.45									
RN104									
EXECUTE CHAIN OF MOD ADDR OPS									
CK MODIFIED AREA FOR 556-0XD58999									
SET ROUT. START									
ADDR IN LOC. 2-4									
RESTORE B FIELD									

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LDCN INSTRUCTION

OPERANDS

LABEL OP

SEQ PG LIN

2248	AV 56	MA	MODCN,MACNAR	EXEC	7	6647	# EOM D8S
2249	AV 57	MA		CHAIN	1	6654	#
2250	AV 58	MA		OF	1	6655	#
2251	AV 59	MA		# OPS	1	6656	#
2252	AV 60	C	MACNAR,MACNAN	CK RESULT	7	6657	C D8S E1Y
2253	AV 61	BE	LOOPCK	CK FOR EQUAL	5	6664	B T62 S
2254	AV 62	B	TYPI	ERR CK FOR TYPE	4	6669	B S89
2255	AV 63			MODIFIED AREA			
2256	AV 64			SHOULD BE			
2257	AV 65			556-0XD56999			

RN105
EXECUTE CHAIN OF COMPARE OPS

2262	AV 70	NOP	*E005	SET ROUT. START	4	6673	N D8/
2263	AV 71	SAR	0004	ADDR IN LOC 2-4	4	6677	Q 004
2264	AV 72	C	MODCN,CMP&009	EXEC CHAIN	7	6681	C EOM E3*
2265	AV 73	C		OF	1	6688	C
2266	AV 74	C		COMPARE OPS	1	6689	C
2267	AV 75	C		CK FOR EQUAL	5	6690	B T62 S
2268	AV 76	BE	LOOPCK	ERR CK FOR TYPE	4	6695	B S89
2269	AV 77	B	TYPI	COMP CHAIN DID			
2270	AV 78			NOT END WITH			
2271	AV 79			EQUAL COMPARE			

RN106
EXECUTE CHAIN OF SBR & SAR OPS
CHECK STORED AREA

2274	AV 82	SAR	*E005	SET ROUT. START	4	6699	N POX
2275	AV 83	SAR	0004	ADDR IN LOC 2-4	4	6703	Q 004
2276	AV 84	MZ	1250,0080	EXEC MZ	7	6707	Y S50 080
2277	AV 85	SAR	CKSTAB	EXEC CHAIN	4	6714	Q E4S
2278	AV 86	SAR		OF	1	6718	Q
2279	AV 87	SBR		STORE	1	6719	H
2280	AV 88	SBR		ADDR OPS	1	6720	H
2281	AV 89	C	CKSTAB,STABAN	CK RESULT	7	6721	C E4S E4Y
2282	AV 90	BE	NX105A	CK FOR EQUAL	5	6728	B P3X S
2283	AV 91	B	TDC105	ERROR	4	6733	B P8/
2284	AV 92	C	CKSTAB-003,CKKS	CK RESULT	7	6737	C E32 E4V
2285	AV 93	BE	NX105B	CK FOR EQUAL	5	6744	B P5T S
2286	AV 94	B	TDC105	ERROR	4	6749	B P8/
2287	AV 95	C	CKSTAB-006,CKKS	CK RESULT	7	6753	C E3W E4V
2288	AV 96	B	NX105C	CK FOR EQUAL	5	6760	B P62 S
2289	AV 97	BE	TDC105	ERROR	4	6765	B P8/
2290	AV 98	C	CKSTAB-009,CKKS	CK RESULT	7	6769	C E3T E4V
2291	AV 99	B	LOOPCK	CK FOR EQUAL	5	6776	B T62 S
2292	AM 00	BE	TYPI	ERR CK FOR TYPE	4	6781	B S89

1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION

2298 AM 06
2299 AM 07
2300 AM 08
2301 AM 09
2302 AM 10
2303 AM 11
2304 AM 12
2305 AM 13
2306 AM 14
2307 AM 15
2308 AM 16
2309 AM 17
2310 AM 18
2311 AM 19
2312 AM 20
2313 AM 21
2314 AM 22
2315 AM 23
2316 AM 24
2317 AM 25
2318 AM 26
2319 AM 27
2320 AM 28
2321 AM 29
2322 AM 30
2323 AM 31
2324 AM 32
2325 AM 33
2326 AM 34
2327 AM 35
2328 AM 36
2329 AM 37
2330 AM 38
2331 AM 39
2332 AM 40
2333 AM 41
2334 AM 42
2335 AM 43
2336 AM 44
2337 AM 45
2338 AM 46
2339 AM 47
2340 AM 48
2341 AM 49
2342 AM 50
2343 AM 51
2344 AM 52
2345 AM 53
2346 AM 54
2347 AM 55

STORED AREA IS
INCORRECTRN107
EXECUTE CHAIN OF MOVE AND LOAD
OPS USING A ADDRS ONLY

NOP	*E005	4	6785	N P9T
SAR	0004	4	6789	Q 004
MCW	ONE,CHNML	7	6793	M U14 ESS
MCW	M5	4	6800	M W03
LCA	CHNASR	4	6804	L X9T
MCW	REC2-005	4	6808	M X16
C	CHNML,CKML	7	6812	C ESS ESV
BE	NXA106	5	6819	B Q2Y S
B	TDC106	4	6824	B Q3W
NXA106 BCE	LOOPCK,CHNML-003,X	8	6828	B T62 E4Z X
TDC106 B	TYP1	4	6836	B S89

SET ROUT. START
ADDR IN LOC 2-4
EXEC MOVE
CHAIN
MV AND
LD INSTRS
CK RESULT
CK FOR EQUAL
ERROR
CK FOR X
ERR CK FOR TYPE
RESULT SHOULD BE
X4N1

RN108
EXECUTE CHAIN OF MZ AND MN OPS
CK OUTPUT FIELD FOR 2 45

NOP	*E005	4	6840	N Q4Y
SAR	0004	4	6844	Q 004
MCW	DVRES1,CKMZMN	7	6848	M V78 E6/
MZ	CMPE003,CKMZMN	7	6855	Y E2U E6/
MN		1	6862	D
MN		1	6863	D
MZ		1	6864	Y
MN		1	6865	D
MZ		1	6866	Y
C	CKMZMN,MZMNNAN	7	6867	C E6/ E6X
BE	LOOPCK	5	6874	B T62 S
B	TYP1	4	6879	B S89

SET ROUT. START
ADDR IN LOC 2-4
RESTORE B FIELD
EXEC
MZ
MN
CHAIN
CK RESULT
CK FOR EQUAL
ERR CK FOR TYPE
RESULT SHOULD BE
2 45

RN109
TEST 8K OR 16K WRAP AROUND
EXECUTE CLEAR STORAGE INSTR
BEGINNING AT LOC. 00000
STORE B ADDR AND CK STORED ADDR
FOR 192 IF 10K SYSTEM
FOR 191 IF GREATER THAN 10K SYSTEM

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[illegible]

1410/7010-1401 CPU COMPATIBILITY TEST

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SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION
2398 AX 06	BAV		LOOPCK	5	7027	B T62 Z
2399 AX 07	B		TYPI	4	7032	B S89
2400 AX 08						ERR CK FOR TYPE
2401 AX 09						BR INST CAUSED
2402 AX 10						OVFLW TO RESET
2403 AX 11						
2404 AX 12						
2405 AX 13						
2406 AX 14						
2407 AX 15						
2408 AX 16						
2409 AX 17						
2410 AX 18						
2411 AX 19	A		ONE,PSCNT	7	7036	A U14 #15
2412 AX 20	C		PSCNT,ONHUND	7	7043	C #15 #12
2413 AX 21	BE		TESTD3	5	7050	B #5Z S
2414 AX 22	B		RNI	4	7055	B K49
2415 AX 23	TESTD3	MCW	XT0,PAS-003,M	8	7059	M XT0 #16 M
2416 AX 24	LCA		ZER3,PSCNT	7	7067	L B4S #15
2417 AX 25	BCE		RNI,TAD3,1	8	7074	B K49 #03 1
2418 AX 26	LCA		B8XXQ,0007	7	7082	L A0Y 007
2419 AX 27	SW		0008	4	7089	, 008
2420 AX 28	MCW		XT0,BK1410-031,M	8	7093	M XT0 CST M
2421 AX 29	H			1	7101	.
2422 AX 30						
2423 AX 31						
2424 AX 32						
2425 AX 33						
2426 AX 34	B8XXQ	DCW	2J00400 2	7	7108	
2427 AX 35						

INC PASS COUNTER
 CK FOR 100 PASS
 CK FOR EQUAL
 NOT 100 PASSES
 TYPE PASS
 RESET PASS CNTR
 TEST FOR REPEAT
 SET
 RESTART
 TYPE MD SW MESS
 HALT TO SET
 COMPATIBILITY SW
 TO 1410 MODE
 PRESS COMPUTER
 RESET & START
 IN NEXT PROG

OPERANDS

LABEL OP

SEONG LIN

1410/7010-1401 CPU COMPATIBILITY TEST.

PROGRAM CONSTANTS

JOB	1410/7010-1401 CPU COMPATIBILITY TEST	PROGRAM	CONSTANTS
22428 AX 37	EURAN1 DCM	2 12 42	8 7116
22429 AX 39	EURAN2 DCM	3CR	13 7129
22430 AX 40	X15ETA DCM	21112	3 7132
22431 AX 41	X15ETB DCM	21J22	3 7135
22432 AX 42	X15ETC DCM	21J12	3 7138
22433 AX 43	X25ETA DCM	22222	3 7141
22434 AX 44	X25ETB DCM	22K32	3 7144
22435 AX 45	X25ETC DCM	22S22	3 7147
22436 AX 46	X35ETA DCM	23332	3 7150
22437 AX 47	X35ETB DCM	23L32	3 7153
22438 AX 48	X35ETC DCM	23F32	3 7156
22439 AX 49	XAN1 DCM	2/102	3 7159
22440 AX 50	XAN2 DCM	2J112	3 7162
22441 AX 51	XAN3 DCM	2A102	3 7165
22442 AX 52	XAN4 DCM	2S212	3 7168
22443 AX 53	XAN5 DCM	2K222	3 7171
22444 AX 54	XAN6 DCM	2B212	3 7174
22445 AX 55	XAN7 DCM	2T322	3 7177
22446 AX 56	XAN8 DCM	2L322	3 7180
22447 AX 57	XAN9 DCM	2C322	3 7183
22448 AX 58	XXAN DCM	20322	3 7186
22449 AX 59	SWRES DCM	2000002	6 7192
22450 AX 60	EDCN1 DCM	2CR2 , \$0.2	13 7205
22451 AX 61	EDCN1 DCM	20000034N2	8 7213
22452 AX 62	EDCN1 DCM	2CR \$3.452	13 7226
22453 AX 63	EDFLD DCM	2	13 7239
22454 AX 64	ZER3 DCM	20002	3 7242
22455 AX 65	P642 DCM	2642	3 7245
22456 AX 66	MANN DCM	2 V722	4 7249
22457 AX 67	22461 AX 70	2 6642	4 7253
22458 AX 68	22461 AX 71	2 1102	4 7257
22459 AX 69	22462 AX 72	2 GRV2	4 7261
22460 AX 70	22463 AX 73	2 H422	4 7265
22461 AX 71	22464 AX 74	2 87R2	4 7269
22462 AX 72	22465 AX 75	2 6/V2	4 7273
22463 AX 73	22466 AX 76	2 -0T2	4 7277
22464 AX 74	22467 AX 77	2 N722	4 7281
22465 AX 75	22468 AX 78	2TURN ON ALL SENSE SWS	4 7313
22466 AX 76	22469 AX 79	2RT2	32 7313
22467 AX 77	22470 AX 80	22	2 7315
22468 AX 78	22471 AX 81	2TURN OFF ALL SENSE SWS	1 7316
22469 AX 79	22472 AX 82	2A22	32 7348
22470 AX 80	22473 AX 83	2SWMES	3 7351
22471 AX 81	22474 AX 84	22	1 7352
22472 AX 82	22475 AX 85	2SET COMPATIBILITY SW TO 1410/7012	32 7384
22473 AX 83	22476 AX 86	20 PRESS COMPUTER RESET AND START2	32 7416
22474 AX 84	22477 AX 87	22	1 7417

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

2478	AX	88	COMPCK	DCW	29992	3	7420	
2479	AX	89		DCW	2992	3	7423	
2480	AX	90		DCW	2992	3	7426	
2481	AX	91		DCW	21992	3	7429	
2482	AX	92		DCW	29922	3	7432	
2483	AX	93		DCW	29922	3	7435	
2484	AX	94		DCW	29922	3	7438	
2485	AX	95		DCW	21922	3	7441	
2486	AX	96		DCW	29922	3	7444	
2487	AX	97		DCW	29922	3	7447	
2488	AX	98		DCW	29922	3	7450	
2489	AX	99		DCW	21922	3	7453	
2490	AY	00		DCW	29912	3	7456	
2491	AY	01		DCW	29912	3	7459	
2492	AY	02		DCW	29912	3	7462	
2493	AY	03	B88	DCW	2	4	7466	
2494	AY	04	TS1401	DCW	2	1	7467	
2495	AY	05	CK1401	DCW	2	3	7470	
2496	AY	06	MACNAR	DCW	2	12	7482	
2497	AY	07	RSMACN	DCW	2554C21S212342	12	7494	
2498	AY	08	MODCN	DCW	2123056K357652	12	7506	
2499	AY	09	MACNAN	DCW	2556-0X0569992	12	7518	
2500	AY	10	CMP	DCW	21232	3	7521	
2501	AY	11		DCW	2056K32	5	7526	
2502	AY	12		DCW	257652	4	7530	
2503	AY	13	CKSTAB	DCW	2	12	7542	E3Z
2504	AY	14	CKKS	DSA	2	3	7545	
2505	AY	15	STABAN	DCW	25492	3	7548	
2506	AY	16	CHNML	DCW	2	4	7552	
2507	AY	17	CKML	DCW	24N12	3	7555	
2508	AY	18	CKMZMN	DCW	2	6	7561	
2509	AY	19	HZMNAN	DCW	2 2 45 2	6	7567	
2510	AY	20	STK	DCW	2	3	7570	
2511	AY	21	STK8K	DCW	21922	3	7573	
2512	AY	22	STK16K	DCW	21912	3	7576	
2513	AY	23	CKPER	DCW	212	1	7577	
2514	AY	24		DCW	2A2	1	7578	
2515	AY	25	BRBK	B	BKK	4	7579	B 222
2516	AY	26	SVINST	DCW	2	4	7586	
2517	AY	27	CLCK	DCW	2AA	10	7596	
2518	AY	28		DCW	2A8	3	7599	
2519	AY	29		DCW	2DEF2	3	7602	
2520	AY	30	MVREC	DCW	2GHIJ	6	7608	

1410/7010-1401 CPU COMPATIBILITY TEST

SFX CT LOCN INSTRUCTION

OPERANDS

SEQ PG LIN LABEL

JOB	1410/7010-1401	CPU COMPATIBILITY TEST
2521	AY 32	
2522	AY 34	
ORG	8000	

8000

1410 ROUTINE TO SET UP POST
RESTART AND TYPE PROG ID

OCW	2D0802800004X2	12	8011
OCW	2*000052	6	8017
OCW	2J08029 2	7	8024
OCW	26-082	4	8028
OCW	2MXT001250W2	10	8038
OCW	2R0802922	7	8045
OCW	2MXT008070W2	10	8055
OCW	2R0804622	7	8062
OCW	2J08112 2	7	8069
OCW	2SET COMPATIBILITY SW TO 1401 PR2	32	8101
OC	2ESS START2	9	8110
OCW	222	1	8111
OCW	2J02007 2	7	8118
OCW	2 2	1	8119

RN070
 EXECUTE MODIFY ADDRESS
 MODIFY A56 BY 54K
 CK FOR F9Q RESULT

NO	OP	SET ROUT.	START	4	8120	N	120
SSAR	0004	ADDR IN LOC 2-4	4	8124	Q	004	
LLCA	EXRESP,88B	RESTORE 8 FIELD	7	8128	L	78P	06W
MA	EXAAO,88B	MODIFY ADDRESS	7	8135	#	80P	06W
C	88B,EXMANN	CK RESULT	7	8142	C	06W	82P
BE	NX160A	CK FOR EQUAL	5	8149	B	15Q	S
B	TYPI	ERR CK FOR TYPE	4	8154	B	S89	
		RESULT OF MA					
		SHOULD 8E F9Q					
LLCA	EXAAO,88B	RESTORE 8 FIELD	7	8158	L	80P	06W
MA	EXRESP,88B	MODIFY ADDRESS	7	8165	#	78P	06W
C	88B,EXMANN	CK RESULT	7	8172	C	06W	82P
BE	LODPCK	CK FOR EQUAL	5	8179	B	162	S
B	TYPI	ERR CK FOR TYPE	4	8184	B	S89	
		RESULT SHOULD BE					
		F9Q					

RN071
 EXECUTE MOOIFY ADDRESS
 MOOIFY 253 BY 150

2570 AY 82

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SFX	CT	LOCN	INSTRUCTION
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
70	70	70	70
71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
80	80	80	80
81	81	81	81
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

SEQ	PG	LIN	LABEL	OP	OPERANDS
1	1	1	START	LD	R0, 0
2	1	2	LOOP	LD	R1, 0
3	1	3	END	LD	R2, 0
4	1	4	STOP	LD	R3, 0
5	1	5	START	LD	R4, 0
6	1	6	LOOP	LD	R5, 0
7	1	7	END	LD	R6, 0
8	1	8	STOP	LD	R7, 0
9	1	9	START	LD	R8, 0
10	1	10	LOOP	LD	R9, 0
11	1	11	END	LD	R10, 0
12	1	12	STOP	LD	R11, 0
13	1	13	START	LD	R12, 0
14	1	14	LOOP	LD	R13, 0
15	1	15	END	LD	R14, 0
16	1	16	STOP	LD	R15, 0
17	1	17	START	LD	R16, 0
18	1	18	LOOP	LD	R17, 0
19	1	19	END	LD	R18, 0
20	1	20	STOP	LD	R19, 0
21	1	21	START	LD	R20, 0
22	1	22	LOOP	LD	R21, 0
23	1	23	END	LD	R22, 0
24	1	24	STOP	LD	R23, 0
25	1	25	START	LD	R24, 0
26	1	26	LOOP	LD	R25, 0
27	1	27	END	LD	R26, 0
28	1	28	STOP	LD	R27, 0
29	1	29	START	LD	R28, 0
30	1	30	LOOP	LD	R29, 0
31	1	31	END	LD	R30, 0
32	1	32	STOP	LD	R31, 0
33	1	33	START	LD	R32, 0
34	1	34	LOOP	LD	R33, 0
35	1	35	END	LD	R34, 0
36	1	36	STOP	LD	R35, 0
37	1	37	START	LD	R36, 0
38	1	38	LOOP	LD	R37, 0
39	1	39	END	LD	R38, 0
40	1	40	STOP	LD	R39, 0
41	1	41	START	LD	R40, 0
42	1	42	LOOP	LD	R41, 0
43	1	43	END	LD	R42, 0
44	1	44	STOP	LD	R43, 0
45	1	45	START	LD	R44, 0
46	1	46	LOOP	LD	R45, 0
47	1	47	END	LD	R46, 0
48	1	48	STOP	LD	R47, 0
49	1	49	START	LD	R48, 0
50	1	50	LOOP	LD	R49, 0
51	1	51	END	LD	R50, 0
52	1	52	STOP	LD	R51, 0
53	1	53	START	LD	R52, 0
54	1	54	LOOP	LD	R53, 0
55	1	55	END	LD	R54, 0
56	1	56	STOP	LD	R55, 0
57	1	57	START	LD	R56, 0
58	1	58	LOOP	LD	R57, 0
59	1	59	END	LD	R58, 0
60	1	60	STOP	LD	R59, 0
61	1	61	START	LD	R60, 0
62	1	62	LOOP	LD	R61, 0
63	1	63	END	LD	R62, 0
64	1	64	STOP	LD	R63, 0
65	1	65	START	LD	R64, 0
66	1	66	LOOP	LD	R65, 0
67	1	67	END	LD	R66, 0
68	1	68	STOP	LD	R67, 0
69	1	69	START	LD	R68, 0
70	1	70	LOOP	LD	R69, 0
71	1	71	END	LD	R70, 0
72	1	72	STOP	LD	R71, 0
73	1	73	START	LD	R72, 0
74	1	74	LOOP	LD	R

CK FOR COG RESULT

2571	AY	83	2572	AY	84	2573	AY	85	2574	AY	86	2575	AY	87	2576	AY	88	2577	AY	89	2578	AY	90	2579	AY	91	2580	AY	92	2581	AY	93	2582	AY	94	2583	AY	95	2584	AY	96	2585	AY	97	2586	AY	98	2587	AY	99	2588	AZ	00	2589	AZ	01	2590	AZ	02	2591	AZ	03	2592	AZ	04	2593	AZ	05	2594	AZ	06	2595	AZ	07	2596	AZ	08	2597	AZ	09	2598	AZ	10	2599	AZ	11	2600	AZ	12	2601	AZ	13	2602	AZ	14	2603	AZ	15	2604	AZ	16	2605	AZ	17	2606	AZ	18	2607	AZ	19	2608	AZ	20	2609	AZ	21	2610	AZ	22	2611	AZ	23	2612	AZ	24	2613	AZ	25	2614	AZ	26	2615	AZ	27	2616	AZ	28	2617	AZ	29	2618	AZ	30	2619	AZ	31	2620	AZ	32
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NOP
SAR
LCA
MA
C
BE
B

*005
 0004
 EXRESP004,888
 EXAAD004,888
 888,EXMANNE004
 NX260A
 TYP1

NX260A LCA
HA
C
BE
8

EXAAD004,888
EXRESP004,888
888,EXANNE004
LOOPCK
TYPE1

RN072
EXECUTE MODIFY ADDRESS
MODIFY: 3DX 8Y 6EW
CK FOR #&L RESULT

NCP
SAR
LCA
MA
C
BE
B

*£005
0004
EXRESP£008,888
EXAAD£008,888
888,EXMAN£008
NX360A
TYP1

NX360A LCA
M.A
C
8E
B

EXAADΣ008, BBB
EXRESPΣ008, BBB
BB8, EXMANNE008
LOOPCK
TYP1

RN073
EXECUTE MODIFY ADDRESS
MODIFY S3N BY 41Y
CK FOR W5C RESULT

NOP SAR

4000
5003

4	B188	N	190	SET ROUT. START
4	B192	Q	004	ADDR IN LOC 2-4
7	B196	7	79J	RESTORE B FIELD
7	B203	#	B1J	MODIFY ADDRESS
7	B210	C	D6W	CK RESULT
5	B217	B	220	CK FOR EQUAL
4	B222	B	S89	ERR CK FOR TYPE
				RESULT OF MA
				SHOULD BE COG
7	B226	L	B1J	RESTORE 8 FIELD
7	B233	#	79J	MODIFY ADDRESS
7	B240	C	D6W	CK RESULT
5	B247	B	I62	CK FOR EQUAL
4	B252	B	S89	ERR CK FOR TYPE
				RESULT SHOULD BE
				COG

SET ROUT. START	4	8256	N 26M				
ADDR IN LOC. 2-4	4	8260	Q 004				
RESTORE B FIELD	7	8264	L 79N	D6W			
MODIFY ADDRESS	7	8271	# 81N	D6W	B3N		
CK RESULT	7	8278	C D6W	B3N			
CK FOR EQUAL	5	8285	B 29M	S			
ERR CK FOR TYPE	4	8290	B 589				
RESULT OF MA							
SHOULD BE #8L	7	8294	L 81N	D6W			
RESTORE B FIELD	7	8301	# 79N	D6W			
MODIFY ADDRESS	7	8308	C D6W	B3N			
CK RESULT	5	8315	8 162	S			
CK FOR EQUAL	4	8320	B 589				
ERR CK FOR TYPE							
RESULT SHOULD BE							
#8L							

SET ROUT. START
ADDR IN LOC. 2-4

1410/7010-1401 CPU COMPATIBILITY TEST

M011 PAGE 69

SEQ PG LIN	LA8EL	OP	DPERANDS	SFX CT	LDEN	INSTRUCTION
2621 AZ 33	LCA		EXRESP012,888	7	8332	L 79R D6W
2622 AZ 34	MA		EXAAD012,888	7	8339	# 81R D6W
2623 AZ 35	C		888,EXMANN012	7	8346	C D6W 83R
2624 AZ 36	8E		NX460A	5	8353	8 36K S
2625 AZ 37	8		TYPI	4	8358	8 589
2626 AZ 38						
2627 AZ 39						
2628 AZ 40	LCA		EXAAD012,888	7	8362	L 81R D6W
2629 AZ 41	MA		EXRESP012,888	7	8369	# 79R D6W
2630 AZ 42	C		888,EXMANN012	7	8376	C D6W 83R
2631 AZ 43	8E		LODPCK	5	8383	8 T62 S
2632 AZ 44	B		TYPI	4	8388	8 589
2633 AZ 45						
2634 AZ 46						
2635 AZ 47						
2636 AZ 48						
2637 AZ 49						
2638 AZ 50						
2639 AZ 51						
2640 AZ 52						
2641 AZ 53						
2642 AZ 54	NOP		*0005	4	8392	N 40-
2643 AZ 55	SAR		0004	4	8396	Q 004
2644 AZ 56	LCA		EXRESP016,888	7	8400	L 80L D6W
2645 AZ 57	MA		EXAAD016,888	7	8407	# 82L D6W
2646 AZ 58	C		888,EXMANN016	7	8414	C D6W 84L
2647 AZ 59	8E		NX560A	5	8421	B 43- S
2648 AZ 60	B		TYPI	4	8426	B 589
2649 AZ 61						
2650 AZ 62						
2651 AZ 63	LCA		EXAAD016,888	7	8430	L 82L D6W
2652 AZ 64	MA		EXRESP016,888	7	8437	# 80L D6W
2653 AZ 65	C		888,EXMANN016	7	8444	C D6W 84L
2654 AZ 66	8E		LODPCK	5	8451	B T62 S
2655 AZ 67	B		TYPI	4	8456	B 589
2656 AZ 68						
2657 AZ 69						
2658 AZ 70						
2659 AZ 71	B		RN75	4	8460	B TB+
2660 AZ 72	H			1	8464	.
2661 AZ 73						

RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FDR EQUAL
ERR CK FDR TYPE
RESULT OF MA
SHOULD BE W5C
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FDR EQUAL
ERR CK FOR TYPE
RESULT SHOULD BE
W5C

RN074
EXECUTE MODIFY ADDRESS
MODIFY A2C BY 545
CK FDR 368 RESULT

SET ROUT. START
ADDR IN LOC. 2-4
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FDR EQUAL
ERR CK FOR TYPE
RESULT OF MA
SHOULD BE 368
RESTORE B FIELD
MODIFY ADDRESS
CK RESULT
CK FDR LOOP
ERR CK FOR TYPE
RESULT SHOULD BE
368

GD TD ROUTINE 75

SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP DPERANDS

2662 AZ 75
2663 AZ 77
2664 AZ 78
2665 AZ 79
2666 AZ 80
2667 AZ 81
2668 AZ 82
2669 AZ 83
2670 AZ 84
2671 AZ 85
2672 AZ 86
2673 AZ 87
2674 AZ 88
2675 AZ 89
2676 AZ 90
2677 AZ 91
2678 AZ 92
2679 AZ 93
2680 AZ 94
2681 AZ 95
2682 AZ 96
2683 AZ 97
2684 AZ 98
2685 AZ 99
2686 BA 00
2687 BA 01
2688 BA 02
2689 BA 03
2690 BA 04
2691 BA 05
2692 BA 06
2693 BA 07
2694 BA 08
2695 BA 09
2696 BA 10
2697 BA 11
2698 BA 12
2699 BA 13
2700 BA 14
2701 BA 15
2702 BA 16
2703 BA 17
2704 BA 18
2705 BA 19
2706 BA 20
2707 BA 21
2708 BA 22
2709 BA 23
2710 BA 24
2711 BA 25

JOB
ORG

8500

RN082
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 192

*E005
0004
8000,TS1401
CK1401
CK1401,COMPCKE021
LODPCK
TYP1
NOP
SAR
MCW
SAR
C
BE
B
SET ROUT. START
ADDR IN LOC. 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
192

4 8500 N 50Q
4 8504 Q 004
7 8508 M 00- D6X
4 8515 Q D7#
7 8519 C D7# D4/
5 8526 B T62 S
4 8531 B S89

RN083
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 99R

*E005
0004
9000,TS1401
CK1401
CK1401,COMPCKE024
LODPCK
TYP1
NOP
SAR
MCW
SAR
C
BE
B
SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE
STORED
ADD SHOULD BE
99R

4 8535 N 54L
4 8539 Q 004
7 8543 M 00- D6X
4 8550 Q D7#
7 8554 C D7# D4U
5 8561 B T62 S
4 8566 B S89

RN084
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO Z9R

*E005
0004
10000,TS1401
CK1401
CK1401,COMPCKE027
LODPCK
TYP1
NOP
SAR
MCW
SAR
C
BE
B
SET ROUT. START
ADDR IN LOC 2-4
EXECUTE MOVE
STORE A ADDRESS
CK ADDRESS
CK FOR EQUAL
ERR CK FOR TYPE

4 8570 N 57Q
4 8574 Q 004
7 8578 M 00- D6X
4 8585 Q D7#
7 8589 C D7# D4X
5 8596 B T62 S
4 8601 B S89

SFX CT LOCN INSTRUCTION

STORED
ADD SHOULD BE
Z9R

RN085
 EXECUTE 1 CHAR MOVE OPERATION
 STORE A ADDRESS AND
 COMPARE STORED ADDRESS TO R9R

INSTR	OP	PC	PC+1	PC+2	PC+3	PC+4	PC+5	PC+6	PC+7	PC+8	PC+9	PC+10	PC+11	PC+12	PC+13	PC+14	PC+15	PC+16	PC+17	PC+18	PC+19	PC+20	PC+21	PC+22	PC+23	PC+24	PC+25	PC+26	PC+27	PC+28	PC+29	PC+30	PC+31	PC+32	PC+33	PC+34	PC+35	PC+36	PC+37	PC+38	PC+39	PC+40	PC+41	PC+42	PC+43	PC+44	PC+45	PC+46	PC+47	PC+48	PC+49	PC+50	PC+51	PC+52	PC+53	PC+54	PC+55	PC+56	PC+57	PC+58	PC+59	PC+60	PC+61	PC+62	PC+63	PC+64	PC+65	PC+66	PC+67	PC+68	PC+69	PC+70	PC+71	PC+72	PC+73	PC+74	PC+75	PC+76	PC+77	PC+78	PC+79	PC+80	PC+81	PC+82	PC+83	PC+84	PC+85	PC+86	PC+87	PC+88	PC+89	PC+90	PC+91	PC+92	PC+93	PC+94	PC+95	PC+96	PC+97	PC+98	PC+99	PC+100	PC+101	PC+102	PC+103	PC+104	PC+105	PC+106	PC+107	PC+108	PC+109	PC+110	PC+111	PC+112	PC+113	PC+114	PC+115	PC+116	PC+117	PC+118	PC+119	PC+120	PC+121	PC+122	PC+123	PC+124	PC+125	PC+126	PC+127	PC+128	PC+129	PC+130	PC+131	PC+132	PC+133	PC+134	PC+135	PC+136	PC+137	PC+138	PC+139	PC+140	PC+141	PC+142	PC+143	PC+144	PC+145	PC+146	PC+147	PC+148	PC+149	PC+150	PC+151	PC+152	PC+153	PC+154	PC+155	PC+156	PC+157	PC+158	PC+159	PC+160	PC+161	PC+162	PC+163	PC+164	PC+165	PC+166	PC+167	PC+168	PC+169	PC+170	PC+171	PC+172	PC+173	PC+174	PC+175	PC+176	PC+177	PC+178	PC+179	PC+180	PC+181	PC+182	PC+183	PC+184	PC+185	PC+186	PC+187	PC+188	PC+189	PC+190	PC+191	PC+192	PC+193	PC+194	PC+195	PC+196	PC+197	PC+198	PC+199	PC+200	PC+201	PC+202	PC+203	PC+204	PC+205	PC+206	PC+207	PC+208	PC+209	PC+210	PC+211	PC+212	PC+213	PC+214	PC+215	PC+216	PC+217	PC+218	PC+219	PC+220	PC+221	PC+222	PC+223	PC+224	PC+225	PC+226	PC+227	PC+228	PC+229	PC+230	PC+231	PC+232	PC+233	PC+234	PC+235	PC+236	PC+237	PC+238	PC+239	PC+240	PC+241	PC+242	PC+243	PC+244	PC+245	PC+246	PC+247	PC+248	PC+249	PC+250	PC+251	PC+252	PC+253	PC+254	PC+255	PC+256	PC+257	PC+258	PC+259	PC+260	PC+261	PC+262	PC+263	PC+264	PC+265	PC+266	PC+267	PC+268	PC+269	PC+270	PC+271	PC+272	PC+273	PC+274	PC+275	PC+276	PC+277	PC+278	PC+279	PC+280	PC+281	PC+282	PC+283	PC+284	PC+285	PC+286	PC+287	PC+288	PC+289	PC+290	PC+291	PC+292	PC+293	PC+294	PC+295	PC+296	PC+297	PC+298	PC+299	PC+300	PC+301	PC+302	PC+303	PC+304	PC+305	PC+306	PC+307	PC+308	PC+309	PC+310	PC+311	PC+312	PC+313	PC+314	PC+315	PC+316	PC+317	PC+318	PC+319	PC+320	PC+321	PC+322	PC+323	PC+324	PC+325	PC+326	PC+327	PC+328	PC+329	PC+330	PC+331	PC+332	PC+333	PC+334	PC+335	PC+336	PC+337	PC+338	PC+339	PC+340	PC+341	PC+342	PC+343	PC+344	PC+345	PC+346	PC+347	PC+348	PC+349	PC+350	PC+351	PC+352	PC+353	PC+354	PC+355	PC+356	PC+357	PC+358	PC+359	PC+360	PC+361	PC+362	PC+363	PC+364	PC+365	PC+366	PC+367	PC+368	PC+369	PC+370	PC+371	PC+372	PC+373	PC+374	PC+375	PC+376	PC+377	PC+378	PC+379
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RN086
EXECUTE 1 CHAR MOVE OPERATION
STORE A ADDRESS AND
COMPARE STORED ADDRESS TO 19R

	4	8640	N	640
SET ROUT. START	4	8640	N	640
ADDR IN LOC 2-4	4	8644	Q	004
EXECUTE MOVE	7	8648	M	006 D6X
STORE A ADDRESS	4	8655	Q	D7#
CK ADDRESS	7	8659	C	D7# D5T
CK FOR EQUAL	5	8666	B	I62 S
ERR CK FOR TYPE	4	8671	B	S89
STORED				
ADD SHOULD BE				
I9R				

RN087
 EXECUTE 1 CHAR MOVE OPERATION
 STORE A ADDRESS AND
 COMPARE STORED ADDRESS TO 991

	*6005	4	8675	N	68L
NOP	0004	7	8679	Q	004
SAR	13000,TS1401	7	8683	M	*06
MCW	CK1401	4	8690	Q	D7#
SAR	CK1401,COMPCKE036	7	8694	C	D7#
B	LDPCW	5	8701	8	162
				S	

2712	8A	26
2713	8A	27
2714	8A	28
2715	8A	29
2716	8A	30
2717	8A	31
2718	8A	32
2719	8A	33
2720	8A	34
2721	8A	35
2722	8A	36
2723	8A	37
2724	8A	38
2725	8A	39
2726	8A	40
2727	8A	41
2728	8A	42
2729	8A	43
2730	8A	44
2731	8A	45
2732	8A	46
2733	8A	47
2734	8A	48
2735	8A	49
2736	8A	50
2737	8A	51
2738	8A	52
2739	8A	53
2740	8A	54
2741	8A	55
2742	8A	56
2743	8A	57
2744	8A	58
2745	8A	59
2746	8A	60
2747	8A	61
2748	8A	62
2749	8A	63
2750	8A	64
2751	8A	65
2752	8A	66
2753	8A	67
2754	8A	68
2755	8A	69
2756	8A	70
2757	8A	71
2758	8A	72
2759	8A	73
2760	8A	74
2761	8A	75

1410/7010-1401 CPU COMPATIBILITY TEST

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SFX CT LOCN INSTRUCTION

SEQ PG LIN LABEL OP OPERANDS

2762 BA 76	B	TYPI	ERR CK FOR TYPE STORED ADD SHOULD BE 99I	4	8706	B	S89
2763 BA 77							
2764 BA 78							
2765 BA 79							
2766 BA 80							
2767 BA 81							
2768 BA 82							
2769 BA 83							
2770 BA 84							
2771 BA 85							
2772 BA 86							
2773 BA 87							
2774 BA 88							
2775 BA 89							
2776 BA 90							
2777 BA 91							
2778 BA 92							
2779 BA 93							
2780 BA 94							
2781 BA 95							
2782 BA 96							
2783 BA 97							
2784 BA 98							
2785 BA 99							
2786 BA 00							
2787 BA 01							
2788 BA 02							
2789 BA 03							
2790 BA 04							
2791 BA 05							
2792 BA 06							
2793 BA 07							
2794 BA 08							
2795 BA 09							
2796 BA 10							
2797 BA 11							
2798 BA 12							
2799 BA 13							
2800 BA 14							
2801 BA 15							
2802 BA 16							
2803 BA 17							
2804 BA 18							
2805 BA 19							
2806 BA 20							
2807 BA 21							
2808 BA 22							
2809 BA 23							
2810 BA 24							
2811 BA 25							

NOP	*E005	SET ROUT. START	4	8710	N	71Q
SAR	0004	ADDR IN LOC 2-4	4	8714	Q	004
MCW	14000,TS1401	EXECUTE MOVE	7	8718	M	-0E D6X
SAR	CK1401	STORE A ADDRESS	4	8725	Q	D7#
C	CK1401,COMPCKE039	CK ADDRESS	7	8729	C	D7# D5Z
BE	LOOPCK	CK FOR EQUAL	5	8736	B	T62 S
B	TYPI	ERR CK FOR TYPE	4	8741	B	S89
		STORED				
		ADD SHOULD BE				
		Z9I				

NOP	*E005	SET ROUT. START	4	8745	N	75L
SAR	0004	ADDR IN LOC 2-4	4	8749	Q	004
MCW	15000,TS1401	EXECUTE MOVE	7	8753	M	E0E D6X
SAR	CK1401	STORE A ADDRESS	4	8760	Q	D7#
C	CK1401,COMPCKE042	CK ADDRESS	7	8764	C	D7# D6S
BE	LOOPCK	CK FOR EQUAL	5	8771	B	T62 S
B	TYPI	ERR CK FOR TYPE	4	8776	B	S89
		STORED				
		ADD SHOULD BE				
		R9I				

B	RN90	GO TO ROUT 90	4	8780	B	W3X
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P R O G R A M C O N S T A N T S

EXRESP	DCW	2	A56B	4	8787
	DCW	2	Z53B	4	8791
	DCW	2	30XB	4	8795
	DCW	2	S3NB	4	8799
	DCW	2	A2CB	4	8803
EXAAD	DCW	2	54KB	4	8807

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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION
2812	88	26		DCW	2 T5D2				
2813	88	27		DCW	2 6EW2			8811	
2814	88	28		DCW	2 41Y2			8815	
2815	88	29		DCW	2 S452			8819	
2816	88	30	EXMANN	DCW	2 F9Q2			8823	
2817	88	31		DCW	2 CQG2			8827	
2818	88	32		DCW	2 *EL2			8831	
2819	88	33		DCW	2 W5C2			8835	
2820	88	34		DCW	2 3682			8839	
2821	88	35		END	START			8843	

/ -00 080

